

AMD Ryzen™ Embedded processors for Mini PC:

AMD Ryzen™ Embedded V-Series SoCs

The AMD Ryzen™ Embedded V1000 and V2000 processor families bring together the breakthrough performance of the pioneering AMD "Zen" CPU and "Vega" GPU architectures in a seamlessly-integrated SoC solution that sets a new standard in processing power for next-generation embedded designs.

AMD Ryzen™ Embedded R-Series SoCs

The AMD Ryzen™ Embedded R1000 brings together the powerful performance of the pioneering "Zen" CPU and "Vega" GPU architectures to the R-Series family. The Ryzen™ Embedded R1000 brings multi-threaded performance, for the first time, to the R-Series of processors.

Target Segments:

MEDIA & ENTERPRISE

INDUSTRIAL

CONSUMER

Application Brief: Mini PCs powered by AMD Ryzen™ Embedded

Enabling an Open Ecosystem for Small Form Factor PC Workloads

Mini PCs are small form factor personal computers often less than 2-liter in size. The bulk of this market is characterized by less-than-1-liter devices that are powered by motherboards approximately 4 inch x 4 inch in size. These tiny computers are used in a variety of applications – from commercial to consumer – and often in places where equipment needs to be hidden or there is not enough space for a full desktop machine. Commercial users of mini PCs also like the configurability option provided by vendors of these mini PCs.

Mini PCs powered by AMD Ryzen™ Embedded processors are enabling an open ecosystem for small form factor PC workloads. Ryzen™ Embedded processors provide 4K multi-display configurability, high-performance 3D graphics and compute, as well as offer planned extended availability, enabling these Mini PCs to turbocharge modern computing needs of industrial, media, and enterprise applications.

Mini PC solutions powered AMD Ryzen™ Embedded harness the breakthrough performance of the pioneering AMD "Zen" CPU architecture and "Vega" GPU architecture on a single die to support an expansive range of performance and power profiles. The advanced features and ample I/O options available on AMD Ryzen™ Embedded processors enable highly versatile Mini PC designs for flexible deployment across several commercial and consumer segments.

Key Benefits of AMD Ryzen™ Embedded powered Mini PCs

Mini PC solutions powered by AMD Ryzen™ Embedded provide unique benefits to system integrators, system designers, and IT professionals. These solutions are a great fit for both commercial and consumer applications.

Open Ecosystem

Part of the power of a device comes from ease of use and scalability, which in turn depends on the ecosystem supporting it. Mini PCs powered by AMD Ryzen™ Embedded are supported by a growing list of hardware and software ecosystem partners, with pre-validated packages based on open software such as Radeon™ Open eCcosystem (ROCm™), OpenCL™, and more. With an open ecosystem, AMD Ryzen™ Embedded processors are well suited for applications that require a small form factor, planned extended availability and fast deployment.

AIoT Ready Systems

From Smart Factory and Industry 4.0 to modern retail and enterprise segments, the deployed solutions need to have the ability to analyze data and make smart decisions. AMD Ryzen™ Embedded processors with Radeon™ graphics provide high compute performance for applications such as machine vision, object detection, edge inference, and analytics. With a broad ecosystem of AIoT SW partners, Mini PCs powered by AMD Ryzen™ Embedded support AIoT applications!

4K Multi-display Configurability

Three and four display requirements are becoming increasingly common in the Retail, Media, and Enterprise space. The adoption of 4K monitors is also increasing with the cost of these monitors going down. AMD Ryzen™ Embedded processors can power up to four 4K displays at low power, while AMD configuration tools such as AMD Eyefinity³ make multi-monitor configuration a breeze. Small form factor Mini PCs powered by AMD Ryzen™ Embedded are ideal devices for Media and Enterprise with constrained space requirements.

Leadership Graphics

Powered by Radeon™ integrated graphics, Mini PCs with AMD Ryzen™ Embedded SoCs enable seamless integration of 3D graphics and visualization capabilities. The ability to simultaneously power multiple graphics-intensive functions and core productivity software make these devices a great choice for enterprise applications.

Planned Extended Availability

Industrial and Media applications mandate long life cycles and reliable supply. The last thing an integrator wants is obsolescence of a system midway through the life cycle of a project. AMD Ryzen™ Embedded processors powering Mini PCs come with up to a planned 10-year availability, which can help reduce replacement cycles and minimize customer costs.

Target Segments for AMD Ryzen™ Embedded powered Mini PC

Media & Enterprise

Mini PCs powered by AMD Ryzen™ Embedded are ideal devices for Media & Enterprise applications such as digital signage, information displays, menu boards, kiosks, and enterprise collaboration. AMD Ryzen™ Embedded processors can enable 4K multi-display capability with leadership graphics that helps drive visually stunning and engaging content.

4K Display Experience: AMD Ryzen™ Embedded processors utilize heritage from the AMD Ryzen™ SoCs that can power up to four 4K displays for everything from digital signage to media collaboration devices. The AMD software ecosystem and configuration tools provide easy plug-and-play compatibility with various monitors and can enable flexible multi-display configuration such as 1x2, 2x1, 1x3, 3x1, and 2x2.

Rich Multimedia: Mini PCs powered by either dual- or quad-core AMD Ryzen™ Embedded SoCs come with integrated Radeon™ graphics, supporting H.265, H.264, and VP9 codecs and 4K60 displays.²

Leadership Graphics: The Ryzen™ Embedded processors bring together AMD "Zen" CPU and "Vega" GPU architectures in a seamlessly integrated SoC solution. Ryzen™ Embedded processors are able to simultaneously power multiple graphics-intensive functions and core productivity software, which make Mini PCs powered by AMD Ryzen™ Embedded a great choice for enterprise applications.

Small Form Factor: Mini PCs powered by AMD Ryzen™ Embedded come in a small form factor that allows easy mounting options for enterprise applications, digital signage, and video conferencing in locations with constrained space requirements.

Industrial

Industrial Mini PCs powered by AMD Ryzen™ Embedded bring the power of AMD Ryzen™ processors in a small form factor to the industrial world. Our technology partners have the choice of either Ryzen™ Embedded V1000, Ryzen™ Embedded V2000 or Ryzen™ Embedded R1000 SoCs to scale different power/performance options and enable fanned or fan-less designs. Mini PCs powered by AMD Ryzen™ Embedded enable a new class of industrial applications with high performance compute and customizable I/O.

AIoT Support: Smart Factory and Industry 4.0 deployments require modern systems to analyze data and make smart decisions. AMD Ryzen™ Embedded processors with Radeon™ graphics provide high compute performance for applications such as machine vision, object detection, edge inference, and analytics. With a broad ecosystem of AIoT SW partners, Mini PCs powered by AMD Ryzen™ Embedded support AIoT applications!

Cloud to Edge: AMD EPYC™ processors are transforming the modern data center with leadership performance. Mini PCs powered by AMD Ryzen™ Embedded now bring that high-performance compute to the Edge, enabling seamless integration at the Edge with the ability of our partners to certify their products for standards (such as Microsoft Azure® Edge).

Longevity: Industrial applications mandate long life cycles and reliable supply. AMD Ryzen™ Embedded processors come with up to a planned 10-year availability, helping alleviate replacement cycles and minimize customer costs.

Software Ecosystem: AMD Ryzen™ Embedded come with a growing list of software ecosystem partners with pre-validated packages based on open software such as Radeon™ Open eCcosystem (ROCm™), OpenCL™, and more. Mini PCs powered by Ryzen™ Embedded processors are capable of running software for machine vision, object detection, edge inference, and cloud analytics offered by software ecosystem partners, creating a platform that's well suited for applications that require fast deployment.

Consumer

Mini PC powered by AMD Ryzen™ Embedded can be a great device for those dorm students with little precious space or the enthusiast who want to build their own media or NAS device. AMD Ryzen™ Embedded processors with integrated graphics support a wide variety of codecs, from H.265 to VP9². With leadership graphics performance powered by integrated "Vega" graphics, the AMD Ryzen™ Embedded SoCs can enable up to 3.6 TFLOPS¹ of compute performance in small form factor.

For more information about the specific features and specifications supported by select products in AMD's solution portfolio, or to learn more about AMD's Mini PC solutions, visit www.amd.com/embedded-minipc-solutions

AMD.com/embedded

1. 3.6 TFLOPS @ 16-bit operations, required configuration at 54W TDP

2. HEVC (H.265), H.264, and VP9 acceleration are subject to and not operable without inclusion/installation of compatible HEVC players. GD-81

3. Learn more at www.amd.com/eyefinity.