AMD Product Brief

AMD RYZEN[™] EMBEDDED 7000 SERIES PROCESSORS

HIGH PERFORMANCE PROCESSING, EXPANSIVE I/O AND INTEGRATED AMD RADEON[™] GRAPHICS FOR VERSATILE INDUSTRIAL PCS, WORKSTATIONS AND EDGE SERVERS



Product Overview

The AMD Ryzen[™] Embedded 7000 series processors set a new performance benchmark for the Ryzen Embedded family by integrating the next generation "Zen 4" 5nm core architecture and AMD RDNA[™] 2 graphics. With thermal design power (TDP) profiles spanning from 65W to 105W, the AMD Ryzen[™] Embedded 7000 series processors combine powerful CPU processing with integrated AMD Radeon[™] graphics and rich I/O connectivity in a socketed (AM5) solution for performant, efficient industrial systems.

AMD Ryzen[™] Embedded 7000 series processors can provide a powerful performance boost for IPCs, workstations, edge servers, robotics and machine vision applications, with power profiles and heat dissipation optimized for heavy workloads. Delivering 28 lanes of on-chip PCIe[®] Gen5 (24 lanes usable when pairing with B650 or X670 chipset) with expandability of up to 12 lanes of PCIe[®] Gen4 and 8 lanes of PCIe[®] Gen3 or SATA, AMD Ryzen[™] Embedded 7000 series processors provide ample I/O flexibility, in a socketed format for simplified integration and upgradeability.

Compute and Graphics Agility

AMD Ryzen[™] Embedded 7000 series processors feature the latest and fastest dual-channel memory support (DDR5 up to 5200MT/s) with error correcting code (ECC) for efficient, reliable memory transfer and real-time processing for robotic controls, monitoring systems, and advanced machinery. Providing powerful x86 CPU compute up to 12 "Zen 4" cores (24 threads), AMD Ryzen[™] Embedded 7000 series processors help enable fast, AI-guided decision making at the edge with the performance to crunch complex mathematical models and simulations.

AMD Ryzen[™] Embedded 7000 series processors feature integrated AMD Radeon-class graphics with the newest generation AMD RDNA[™] 2 architecture technology to optimize performance, visuals, and power efficiency. Integrated graphics eliminates the need for a discrete GPU or graphics card for designers seeking to streamline system density and cooling while preserving PCIe[®] lanes to maximize I/O flexibility.

A single, small-footprint AMD Ryzen[™] Embedded 7000 series processor can power up to four independent displays (3x USB-C, 1x dedicated). For industrial systems leveraging graphical consoles and status panels, AMD Ryzen[™] Embedded 7000 processors help enable versatile display and HMI configurations in space and thermally constrained environments.



Expansive Options

The optional AMD 600 series chipset ("Promontory" family) enables easy I/O expandability of high-speed interfaces up to 12 lanes of PCIe[®] Gen4 plus 8 lanes of PCIe[®] Gen3 or SATA, and support for up to 12 USB 2.0 and 12 USB 3.2 (Gen 2x1) interconnects.

The performance and power scalability afforded with AMD Ryzen[™] Embedded 7000 series processors make them an ideal fit for industrial system OEMs expanding their product portfolios across a range of performance, power and graphics-optimized options.

AMD Ryzen[™] Embedded 7000 series processors are available in 6, 8 and 12 core options. Planned product availability up to 7 years (Ryzen PRO) helps enable long design longevities.

Additional Key Features

- AMD "Zen 4" x86 core architecture with support for up to 12 cores/24 threads
- 1MB L2 cache/Core, 32MB L3 cache/CCD
- TDP range: 65W / 105W
- 28 lanes of on-chip PCle[®] Gen5 (24 lanes usable when pairing with B650 or X670 chipset) with expandability of up to 12 lanes of PCle[®] Gen4 and additional PCle[®] Gen3, SATA and USB 2 and 3.2 connectivity
 - 4 PCIe[®] Gen5 lanes will be used for chipset interconnect if pairing with AMD 600 series chipset
- Dual-channel DDR5 with ECC up to 5200 MT/s
 - 2 UDIMMs / 1 SO-DIMM per channel
- Integrated AMD RDNA[™] 2 graphics (1WGP @ 2.2GHz max)
- Support for up to 4 display interfaces (3x USB-C DP-Alt)
- AV1/VP9 Decode, H.264/HEVC Decode/Encode¹
- OS support includes Microsoft Windows 11/10/Server 2022, and Linux Ubuntu
- Leverages an onboard AMD Secure Processor (ASP) complemented with Microsoft Pluton trusted processor module (TPM) for enhanced security
- AM5 socket platform (40 x 40mm LGA)
- Planned product availability extends up to 7 years, providing customers with a long-lifecycle support roadmap



For more information about the specific features and specifications supported by select products in AMD's solutions portfolio, or to learn more about AMD's Ryzen[™] Embedded 7000 series processor family.

Visit www.amd.com/ryzen-embedded-7000-series

1. Video codec acceleration (including at least the HEVC (H.265), H.264, VP9, and AV1 codecs) is subject to and not operable without inclusion/installation of compatible media players. GD-176

©2023 Advanced Micro Devices, Inc. All rights reserved. AMD, the AMD Arrow logo, Ryzen, Ryzen Embedded, Zen and combinations thereof are trademarks of Advanced Micro Devices, Inc. PCIe^{®®} is a registered trademark of PCI-SIG Corporation. Other product names used in this publication are for identification purposes only and may be trademarks of their respective companies. PID# 232003583-A