AMD EPYC

WHICH AMD EPYC™ PROCESSOR IS RIGHT FOR MY WORKLOAD?

AMD EPYC processors provide exceptional performance, efficiency and security features for the widening array of scenarios and applications your business counts on today.

Since its introduction in 2017, the AMD "Zen" microprocessor architecture has enabled significant improvements for each processor generation. Compatible with x86 software applications, it's the foundation for streamlined data center upgrades and transformations achieved at your pace and on your budget.

PICK YOUR PROCESSOR

	AMD EPYC 4004 SERIES	AMD EPYC 7003 SERIES	AMD EPYC 7003 SERIES WITH AMD 3D V-CACHE™ TECHNOLOGY	AMD EPYC 8004 SERIES	AMD EPYC 9004 SERIES	AMD EPYC 9004X SERIES WITH AMD 3D V-CACHE TECHNOLOGY	AMD EPYC 9005 SERIES
	Accommodate the all-day, everyday entry-level needs of price-conscious small businesses and dedicated hosted services that require robust performance in a low-cost, dependable and easy-to-use server.	Utilize proven technology solutions to gain excellent performance, high efficiency and great value in the data center and in the cloud. Choose the ideal number of cores, frequencies and cache sizes for everyday server workloads.	Achieve breakthrough performance for complex technical computing workloads like EDA, CFD, FEA and more with generous L3 cache.	Optimize intelligent edge, cloud services and telco workloads with purpose-built, energy-efficient CPUs.	Enhance data center performance and energy efficiency to accelerate business results. Get high-performance density, energy efficiency and full-cloud compatibility for on-premises and cloud-native environments.	Surge ahead with the cores, cache and throughput you need to address today's most complex technical workloads, including EDA, CFD, FEA and WFA.	Get leadership performance, density and efficiency for demanding AI enablement, hybrid cloud buildouts and data-intensive enterprise applications.
THE SPECS	1P capable 4th Gen AMD EPYC processor based on 5nm process technology and **"Zen 4"** architecture • Up to 16 cores and 32 threads • Up to 28 PCIe® 5.0 I/O lanes • Up to 128 GB of DDR5-5200 memory • Up to 64 MB L3 cache	1P and 2P capable 3rd Gen AMD EPYC processor based on 7nm process technology **"Zen 3"** architecture • Up to 64 cores and 128 threads • Up to 128 PCIe 4.0 I/O lanes[1] • Up to 4 TB of DDR4-3200 memory across 16 DIMM slots • Up to 256 MB L3 cache	1P and 2P capable 3rd Gen AMD EPYC processor architecture based on 7nm process technology and **"Zen 3"** architecture • Up to 64 cores and 128 threads • Up to 128 PCIe 4.0 I/O lanes[1] • Up to 4 TB of DDR4-3200 memory across 16 DIMM slots • Up to 768 MB L3 cache enabled by AMD 3D V-Cache technology	1P capable 4th Gen AMD EPYC processor based on 5nm process technology and ultra-efficient **"Zen 4c"** chiplet microarchitecture • Up to 64 cores and 128 threads • Up to 96 PCIe 5.0 I/O lanes[1] • Up to 1.152 TB of DDR5-4800 memory across 12 DIMM slots • Up to 128 MB L3 cache • Up to 48 lanes of CXL™ connectivity for cache-coherent memory pools • Industry-standard AVX-512 support	1P and 2P capable 4th Gen AMD EPYC architecture based on 5nm process technology and **"Zen 4"** or ultra-efficient **"Zen 4c"** chiplet microarchitecture • Up to 128 cores and 256 threads ("Zen 4c"); up to 96 cores and 192 threads ("Zen 4") • Up to 160 lanes of PCIe 5.0 I/O[1] • Up to 6 TB of DDR5-4800 memory channels across 24 DIMM slots • Up to 384 MB L3 cache • Up to 64 lanes of CXL™ 2.0 industry standard cache-coherent interconnect • Industry-standard AVX-512 support (2x256b data path)	1P and 2P capable 4th Gen AMD EPYC architecture based on 5nm process technology and **"Zen 4"** architecture • Up to 96 cores and 192 threads • Up to 128 lanes (1P) or 160 lanes (2P) of PCIe 5.0 I/O[1] • Up to 6 TB of DDR5-4800 memory channels across 24 DIMM slots. Plus, up to 1152 MB L3 cache, enabled by AMD 3D V-Cache™ technology • Up to 64 lanes of CXL™ connectivity for cache-coherent memory pools • Industry-standard AVX-512 support	1P and 2P capable 5th Gen AMD EPYC architecture based on cutting-edge TSMC 3/4nm process technology and **"Zen 5c"** or **"Zen 5"** chiplet microarchitecture • Up to 192 cores and 384 threads ("Zen 5c"); up to 128 cores and 256 threads ("Zen 5") • Up to 128 lanes of PCIe 5.0 I/O[1] • Up to 6 TB of DDR5-6000 memory channels across 24 DIMM slots • Up to 512 MB of L3 cache ("Zen 5"); up to 384 MB cache ("Zen 5c") • CXL™ Type 1 & 2 devices and PCIe link encryption support dependent upon ecosystem readiness; type 2 PoC only[9xx5-072] • Industry-standard AVX-512 support (full 512b data path)
PERFORMANCE HIGHLIGHTS	Essential server solutions with impressive performance per dollar. Comparing 1P 8c servers, an AMD EPYC 4344P CPU delivers an estimated 9% better performance/estimated system $ than an Intel® Xeon® E-2488 CPU.[EK4-002A]	Get fast time to results, fast processing, high throughput and good TCO. Delivers up to ~19% average IPC generational uplift on representative server workloads.[MLN-003]	Outstanding x86 server processors that introduced breakthrough per-core L3 cache and exceptional energy efficiency for low TCO.	Energy-efficient performance in space and power-constrained environments. Get 44% better integer performance per system watt when comparing single-socket servers using a 64c AMD EPYC 8534PN CPU vs. a 52c Intel® Xeon® Platinum 8471N CPU.[SP6-003]	Scale your enterprise applications with 4th Gen 64-core EPYC 9554 CPUs, outperforming 3rd Gen 64-core EPYC 7763 CPUs by 52% on 2P integer[SP5-053A] and 86% on 2P higher floating-point[SP5-052A] per core. For fast-emerging cloud native workloads, comparing 2P servers running eight common cloud-native workloads, 128-core EPYC 9754 delivers up to ~2.6x (~2.0x average) the performance of Intel® Xeon® Platinum 8490H and up to ~3.7x (~2.8x average) the performance of Ampere® Altra® Max M128-30.[2]	High-impact out-of-the-box performance across a range of high-performance computing (HPC), computer-aided engineering (CAE) and memory-intensive, serially dependent technical workloads. The 96-core AMD EPYC 9684X delivers remarkable high-performance for technical computing.	Double digit instructions per cycle (IPC) improvements over the previous generation[9xx5-001] deliver impressive performance uplifts for your demanding AI, cloud and enterprise applications.

DEFEND AGAINST THREATS AND GUARD YOUR DATA

AMD IS SERIOUS ABOUT SECURITY.

Designed from the ground up to be highly resistant to today's sophisticated attacks, AMD processors help protect your sensitive data, avoid downtime and reduce resource drain. All AMD EPYC Series processors include AMD Infinity Guard,[3] which provides a unique and robust set of on-chip security features to help complement industry ecosystem partners at the software and system levels.

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1. Up to 160 lanes in 2-socket configurations
2. See https://www.amd.com/content/dam/amd/en/documents/epyc-business-docs/performance-briefs/amd-epyc-9754-vs-cloud-native-workloads.pdf
3. AMD Infinity Guard features vary by EPYC processor generations and/or Series. Infinity Guard security features must be enabled by server OEMs and/or cloud service providers to operate. Check with your OEM or provider to confirm support of these features. Learn more about Infinity Guard at amd.com/en/technologies/infinity-guard. GD-183A

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