AMD EPYC™ 9004 SERIES PROCESSORS

TOGETHER WE ADVANCE DATA CENTER COMPUTING

AT A GLANCE

We take the mystery out of CPU selection with AMD EPYC™ processors: Just choose the core count, frequency, and L3 cache size your workload requires. Memory capacity, security features, I/O bandwidth, and the rest are included at no extra cost. Fourth-generation AMD EPYC processors build upon our innovative hybrid multi-chip architecture to deliver on the defining metric of our day: the ultimate combination of performance and efficiency.

BREAKTHROUGH PERFORMANCE

Accelerate productivity, make more informed decisions, and speed time to market with a common platform that delivers the performance you need.

How can you propel compute-challenged workloads? AMD EPYC 97x4 processors offer the performance, density, energy efficiency and compatibility needed to provide no-compromise computing for growing cloud-native environments.

How can you push memory-demanding workloads? Up to 1152 MB of L3 cache pushes applications beyond their prior limits including computational fluid and molecular dynamics, RTL simulation, and climate modeling. Compare servers with two 96-Core EPYC 9684X processors with AMD 3D V-Cache™ technology to servers with two 56-core Intel Xeon 8480+ processors and enjoy an average 2.1x speedup running the ANSYS® Fluent® 2022 R2 CFD workload.[1]

What if I need excellent balanced, performance? Speed your business workloads, software development, data management, analytics, collaborative, and infrastructure applications with the world's highest-per-core-performance x86-architecture CPU.[SP5-014B]

MODERNIZE YOUR INFRASTRUCTURE

When you upgrade your infrastructure, you want the most innovative design, high density, excellent energy efficiency, and low total cost of ownership.

Performance, density, and cache size: with the AMD EPYC 9004 series, we deliver leading performance per core with EPYC 96xx processors,[SP5-014B] the highest thread density on the planet with the EPYC 97xx processors,[EPYC-025B] and the industry's largest L3 cache with AMD 3D V-Cache™ technology.[EPYC-024B]

Balance and efficiency: 4th Gen EPYC CPUs power the world's most energy-efficient servers enabling new levels of power efficiency while supporting workload scale.[SP5-028C] They strive for balance, and with more memory channels than any other x86 processor, delivering data to the CPU swiftly.

COMPUTE WITH CONFIDENCE

To propel your business forward, you need to confidently navigate today's risks, complexities, and requirements.

The right path: you know that choosing AMD EPYC processors helps put you on the right path for the future. AMD EPYC processors are 100% x86 compatible so you can easily leverage the extensive x86 software ecosystem.

Multiple innovation paths: our hybrid, multi-chip architecture enables us to move forward on multiple innovation paths at once—by splitting out I/O from computing, we are the first to deliver x86 CPUs based on 5nm process technology. Our 4th generation processors offer three different CPU options, one for balanced workloads and per-core performance (96xx CPUs), one for the highest core density (97xx CPUs), and one with high level 3 cache (CPUs with AMD 3D V-Cache technology).

Artificial intelligence acceleration: full support for AVX-512 includes BFLOAT16 and VNNI instructions to help speed artificial intelligence and machine learning applications.

Generational improvements: we have established a track record of delivering double-digit improvements in instructions per clock with every new processor generation, raising confidence that you will be on the right path for the future.

AMD Infinity Guard[2] features: speaking of confidence, we deliver security features that are "hardened at the core" with an integrated security processor that helps protect your most valuable assets—your data.

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MODEL	CORES	THREADS	BASE FREQ. (GHZ)	UP TO MAX BOOST FREQ. (GHZ)[a]	ALL-CORE BOOST (GHZ)[b]	DEFAULT TDP (W)	L3 CACHE (MB)	DDR5 CHANNELS	UP TO MAX DDR5 FREQ. (1DPC)	PER-SOCKET THEORETICAL MEMORY BANDWIDTH (GB/S)	PCIE® GEN 5 LANES	2P/1P
9754	128	256	2.25	3.10	3.10	360	256	12	4800	460.8	128	2P/1P
9754S		128										
9734	112	224	2.20	3.00	3.00	340	256	12	4800	460.8	128	2P/1P
9654	96	192	2.40	3.70	3.55	360	384	12	4800	460.8	128	2P/1P
9654P												1P
9634	84	168	2.25	3.70	3.10	290	384	12	4800	460.8	128	2P/1P
9554	64	128	3.10	3.75	3.75	360	256	12	4800	460.8	128	2P/1P
9554P												1P
9534	64	128	2.45	3.70	3.55	280	256	12	4800	460.8	128	2P/1P
9454	48	96	2.75	3.80	3.65	290	256	12	4800	460.8	128	2P/1P
9454P												1P
9354	32	64	3.25	3.80	3.75	280	256	12	4800	460.8	128	2P/1P
9354P												1P
9334	32	64	2.70	3.90	3.85	210	128	12	4800	460.8	128	2P/1P
9254	24	48	2.90	4.15	3.90	200	128	12	4800	460.8	128	2P/1P
9224	24	48	2.50	3.70	3.65	200	64	12	4800	460.8	128	2P/1P
9124	16	32	3.00	3.70	3.60	200	64	12	4800	460.8	128	2P/1P
AMD EPYC 9004 SERIES PROCESSORS WITH AMD 3D V-CACHE												
9684X	96	192	2.55	3.70	3.42	400	1152	12	4800	460.8	128	2P/1P
9384X	32	64	3.10	3.90	3.50	320	768	12	4800	460.8	128	2P/1P
9184X	16	32	3.55	4.20	3.85	320	768	12	4800	460.8	128	2P/1P
HIGH-FREQUENCY AMD EPYC 9004 SERIES PROCESSORS												
9474F	48	96	3.60	4.10	3.95	360	256	12	4800	460.8	128	2P/1P
9374F	32	64	3.85	4.30	4.10	320	256	12	4800	460.8	128	2P/1P
9274F	24	48	4.05	4.30	4.10	320	256	12	4800	460.8	128	2P/1P
9174F	16	32	4.10	4.40	4.15	320	256	12	4800	460.8	128	2P/1P

a. Maximum boost for AMD EPYC processors is the maximum frequency achievable by any single core on the processor under normal operating conditions for server systems. EPYC-18.
b. All-core boost for AMD EPYC processors is the average frequency of all processor cores running in performance mode while utilizing a low activity workload. Actual achievable all-core boost will vary based on hardware, software, workloads and other conditions. (EPYC-021)

FOOTNOTES

For details on the footnotes used in this document, click on the links or visit amd.com/en/claims/epyc4

1. Source: amd-epyc-9004x-pb-ansys-fluent.pdf
2. AMD Infinity Guard features vary by EPYC processor generations. Infinity Guard 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 https://www.amd.com/en/technologies/infinity-guard. GD-183