AMD EPYC™ 9005 SERIES PROCESSORS

BUILT FOR AI-ENABLED, BUSINESS-CRITICAL DATA CENTER WORKLOADS

AT A GLANCE

If you need to power a new generation of AI-enabled, business-critical workloads, while supporting traditional, virtualized, and cloud applications, 5th Gen AMD EPYC™ processors were designed for you. Built using the new 'Zen 5' processor core, the EPYC 9005 Series helps you expand AI within the enterprise while supporting business imperatives to improve energy efficiency and rein in data center sprawl. Modernizing with proven, advanced, x86 architecture can make room in your data center while powering your AI inferencing and machine learning operations.

INTRODUCING THE 5TH GEN AMD EPYC PROCESSOR FAMILY

The AMD EPYC 9005 Series uses a hybrid, multi-chip design and new 'Zen 5' and 'Zen 5c' cores to address data center challenges such as delivering leadership performance, density, and efficiency in virtualized and cloud environments, and supporting new AI workloads. The processor family has a wide range of core counts, including high-frequency products for CPU-based AI inference and fueling GPU-accelerated workloads, high-density CPUs for virtualized workloads, and CXL® 2.0 capabilities for memory-intensive tasks. All processors in the series have support for up to 12 DDR5-6000 memory channels, 128 PCIe® Gen 5 I/O lanes (up to 160 in 2-socket servers), and the AMD Secure Processor to enable virtual machine encryption domains.

OPTIMIZE APPLICATION PERFORMANCE

Modernizing your infrastructure is key to making room for AI initiatives

Servers based on the EPYC 9005 Series support data center consolidation and modernization to address increasingly demanding enterprise application needs. High core counts help you do more with fewer servers. For example, you can replace 100 old 2-socket servers with 28-core Intel® Xeon® 8280 CPUs, with only ~14 new 2-socket servers powered by 192-core AMD EPYC 9965 processors. The AMD solution delivers the same 39,100 units of integer performance, reduces power consumption by 69%, and lowers three-year total cost of ownership (TCO) by up to 65%.[9xx5TCO-001B]

POWER AI INFERENCE AND MACHINE LEARNING

Delivers leadership AI inference performance while also marshaling data for GPU-accelerated servers

The EPYC 9005 Series is designed to manage the voracious appetite that AI applications have for data and processing power. With full 512-bit data paths in the core, instruction pipeline optimizations, and additional integer and floating-point units, the CPU can run a broad class of AI workloads on CPU-only infrastructure, without requiring GPU acceleration. For example, you can achieve up to 2.7x the inference throughput when running extreme gradient boosting with the Higgs boson data set (XG Boost) on servers with two 192-core EPYC 9965 processors compared to those with two 64-core Intel Xeon 8592+ CPUs.[9xx5-010] Also, high-frequency-optimized EPYC 9005 Series CPUs perform exceptionally well as host processors in GPU-accelerated systems, enabling fast and efficient handling of extensive data preparation and post-processing tasks. When hosting eight GPU accelerators, servers with two high-frequency, 64-core EPYC 9575F CPUs process up to 20% more inference requests and accomplish ~15% faster training time compared to servers with two 64-core Xeon 8592+ CPUs on Llama 3.1-70B and 3.1-8B, respectively.[9xx5-014, 9xx5-015]

TRUSTED BY INDUSTRY LEADERS

AMD is a trusted supplier for global computing installations today

The proven performance, efficiency, and easy x86-software compatibility of AMD EPYC processors have prompted companies, governments, and organizations around the globe to make the switch to EPYC processor-based servers for the most demanding computing tasks. With the leadership AMD EPYC portfolio available from leading systems vendors, and qualified with leading applications and AI frameworks, models, and tools, servers with AMD EPYC processors can enhance your computing and AI-powered business solutions, providing a seamless path towards excellence.

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MODEL	CORES	THREADS	'ZEN' CPU CCD	BASE FREQ. (GHZ)	UP TO MAX BOOST FREQ. (GHZ)[A]	TDP (W)	L3 CACHE (MB)	DDR5 CHANNELS/ MAX MEM (2DPC)	UP TO MAX DDR5 MT/S (1DPC)	MAX PCIE® GEN 5 LANES	2P/1P
9965	192	384	5c	2.25	3.70	500	384	12/6 TB	6000	160	2P/1P
9845	160	320	5c	2.10	3.70	390	320	12/6 TB	6000	160	2P/1P
9825	144	288	5c	2.20	3.70	390	384	12/6 TB	6000	160	2P/1P
9755	128	256	5	2.70	4.10	500	512	12/6 TB	6000	160	2P/1P
9745	128	256	5c	2.40	3.70	400	256	12/6 TB	6000	160	2P/1P
9655	96	192	5	2.60	4.50	400	384	12/6 TB	6000	160	2P/1P
9655P	96	192	5	2.60	4.50	400	384	12/6 TB	6000	128	1P
9645	96	192	5c	2.30	3.70	320	256	12/6 TB	6000	160	2P/1P
9565	72	144	5	3.15	4.30	400	384	12/6 TB	6000	160	2P/1P
9575F	64	128	5	3.30	5.00	400	256	12/6 TB	6000	160	2P/1P
9555	64	128	5	3.20	4.40	360	256	12/6 TB	6000	160	2P/1P
9555P	64	128	5	3.20	4.40	360	256	12/6 TB	6000	128	1P
9535	64	128	5	2.40	4.30	300	256	12/6 TB	6000	160	2P/1P
9475F	48	96	5	3.65	4.80	400	256	12/6 TB	6000	160	2P/1P
9455	48	96	5	3.15	4.40	300	256	12/6 TB	6000	160	2P/1P
9455P	48	96	5	3.15	4.40	300	256	12/6 TB	6000	128	1P
9365	36	72	5	3.40	4.30	300	192	12/6 TB	6000	160	2P/1P
9375F	32	64	5	3.80	4.80	320	256	12/6 TB	6000	160	2P/1P
9355	32	64	5	3.55	4.40	280	256	12/6 TB	6000	160	2P/1P
9355P	32	64	5	3.55	4.40	280	256	12/6 TB	6000	128	1P
9335	32	64	5	3.00	4.40	210	128	12/6 TB	6000	160	2P/1P
9275F	24	48	5	4.10	4.80	320	256	12/6 TB	6000	160	2P/1P
9255	24	48	5	3.20	4.30	200	128	12/6 TB	6000	160	2P/1P
9175F	16	32	5	4.20	5.00	320	512	12/6 TB	6000	160	2P/1P
9135	16	32	5	3.65	4.30	200	64	12/6 TB	6000	160	2P/1P
9115	16	32	5	2.60	4.10	125	64	12/6 TB	6000	160	2P/1P
9015	8	16	5	3.60	4.10	125	64	12/6 TB	6000	160	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.

FOOTNOTES

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

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