AMD EPYC

POWER YOUR AI REVOLUTION

WITH AMD EPYC™ PROCESSORS

With their leadership performance, exceptional energy efficiency and built-in security capabilities, AMD EPYC processors can be critical to enabling artificial intelligence solutions, extending and enriching workloads and activities across industries.

MACHINE LEARNING AND AI TECHNOLOGIES ARE PRESENTING AMAZING NEW OPPORTUNITIES FOR BUSINESSES AND ORGANIZATIONS OF ALL SIZES

AI HARDWARE MARKET IS ON THE RISE

The global AI hardware market is expanding, with an annual **growth rate of 24.5%**, from $53.71 billion in 2023 to a projected $473.53 billion by 2033.[1]

MANY CURRENTLY USING AI

53% of businesses already apply AI to improve production processes, and 51% are adopting AI for process automation.[2]

BUSINESSES BELIEVE IN AI

Nearly **two-thirds (64%)** of business owners believe **AI will improve customer relationships**.[3]

GETTING THE MOST FROM AI TECHNOLOGIES DEMANDS:

CAPACITY

Data center modernization can consolidate existing infrastructure to free up space and energy for new AI deployments.

ENERGY EFFICIENCY

The average data center size worldwide is 100,000 square feet,[4] and electricity consumption from data centers, AI and the cryptocurrency sector could double by 2026.[5] Controlling energy consumption is critical.

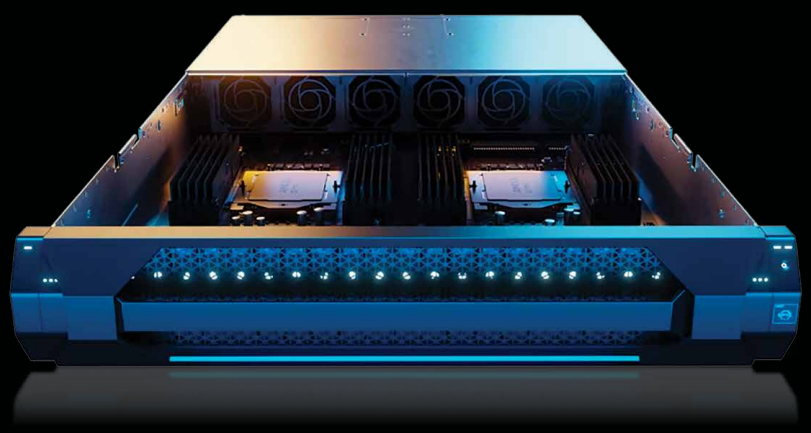
SECURITY

Guarding against cyberattacks is crucial—and so is protecting proprietary AI source data and generated IP (intellectual property).

AMD EPYC™ PROCESSORS:

THE RIGHT CHOICE FOR AI

Use AMD EPYC CPU-based servers not only for small-scale AI training and inferencing but also to consolidate and enhance your existing workloads and data stores.



ENABLE HIGH PRODUCTIVITY

LEADING INFERENCE PERFORMANCE

UP TO **1.78X BETTER INFERENCE PERFORMANCE** THAN THE COMPETITION

Vehicle Detection FPS OpenVINO FP16-INT8 testing, AMD EPYC 9654-based servers vs. Intel® Xeon® Platinum 8940H-based servers.[SP5-192]

END-TO-END AI BOOST

UP TO **2.2X MORE AGGREGATE AI USE CASES/MINUTE** THAN THE COMPETITION

TPCx-AI SF3 end-to-end testing, 2P, 128-core 4th Gen AMD EPYC 9754-based servers vs. 2P, 60-core 4th Gen Intel Xeon Platinum 8490H-based servers.[SP5-051]

INNNOVATIVE X86 CPU DESIGN FOR AI SUCCESS

AMD EPYC 9004-POWERED SERVERS OFFER:

- UP TO **2X THE CORES** VS. 5TH GEN INTEL XEON PROCESSORS FOR HETEROGENOUS AND GPU PROCESSING[6]
- UP TO **29% MORE ALL-CORE TURBO FREQUENCY** PER CORE[7, 8]
- UP TO **50% MORE MEMORY CAPACITY** AND UP TO **29% MORE MEMORY BANDWIDTH** FOR HETEROGENEOUS GPU WORKLOADS[9]

MODERNIZE COST-EFFECTIVELY

OPTIMAL CONSOLIDATION

DEPLOY AN ESTIMATED **73% FEWER**

THE RIGHT FIT

AMD EPYC PROCESSORS ARE AN

SERVERS AND **70% FEWER RACKS** WHEN USING UNITS POWERED BY 4TH GEN AMD EPYC 9334 CPUs VS. INTEL XEON 6143 SKY LAKE CPUs TO CONSOLIDATE 80,000 UNITS OF INTEGER PERFORMANCE[SP5TCO-055]

EXCELLENT CHOICE FOR **SMALL AND MEDIUM AI MODELS** AND MIXED WORKLOADS

STREAMLINED TRANSFORMATIONS

AMD EPYC PROCESSORS ARE **COMPATIBLE OUT OF THE BOX** WITH MAJOR X86 APPLICATIONS, WHETHER ON PREMISES OR HOSTED BY ONE OF THE MAJOR CLOUD PROVIDERS

A FAMILY OF AMD AI SOLUTIONS

AUGMENT AMD EPYC CPUs WITH THE ACCELERATION PERFORMANCE OF AMD INSTINCT™ GPUs TO ADDRESS **THE FULL SPECTRUM OF AI WORKLOADS** WITH DISTINCT CHARACTERISTICS AND DEPLOYMENT SCENARIOS

GET ENERGY-EFFICIENT SOLUTIONS

NEW WAYS TO OPTIMIZE

AMD EPYC PROCESSORS **POWER THE MOST ENERGY-EFFICIENT X86 SERVERS**, DELIVERING EXCEPTIONAL PERFORMANCE AND HELPING REDUCE ENERGY COSTS

[EPYC-028C]

DATA CENTER SAVINGS

CONSUME AN ESTIMATED **65% LESS POWER** WHEN USING 2P 4TH GEN AMD EPYC 9334 CPU-POWERED SERVERS VS. 2P INTEL XEON 6143 SKY LAKE CPU-BASED SERVERS TO CONSOLIDATE 80,000 UNITS OF INTEGER PERFORMANCE

[SP5TCO-055]

COMPUTE WITH CONFIDENCE

A LAYERED APPROACH

THE **ROBUST, MODERN AND MULTILAYERED DEFENSE OF AMD INFINITY GUARD**[10] HELPS DEFEND AGAINST INTERNAL AND EXTERNAL THREATS AND KEEP YOUR DATA SAFE. TO MAKE STRONG SECURITY FEATURES EVEN STRONGER, 4TH GEN AMD EPYC PROCESSORS ADD 256B AES-XTS ENCRYPTION AND CXL™ TYPE 3 MEMORY EXPANSION

WORKING TOGETHER

AMD TAKES A COLLABORATIVE APPROACH WITH OUR SUPPLIERS TO PROMOTE CONTINUOUS IMPROVEMENT AND **DRIVE POSITIVE CHANGE** ACROSS OUR VALUE CHAIN

AMD × EPYC

SCALE YOUR AI INFRASTRUCTURE WITH AMD TO UNLOCK EXCEPTIONAL PERFORMANCE, EFFICIENCY AND COMPATIBILITY.

TOGETHER WE ADVANCE_AI

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1 GlobeNewswire, "Artificial Intelligence (AI) in Hardware Market Size to Reach USD 473.53 Bn By 2033," March 6, 2024, https://www.globenewswire.com/news-release/2024/03/06/2841613/0/en/Artificial-Intelligence-AI-in-Hardware-Market-Size-to-Reach-USD-473-53-Bn-By-2033.html.

2 Forbes Advisor, "How Businesses Are Using Artificial Intelligence In 2023," April 24, 2023, https://www.forbes.com/advisor/business/software/ai-in-business/.

3 Forbes Advisor, "How Businesses Are Using Artificial Intelligence In 2023," April 24, 2023, https://www.forbes.com/advisor/business/software/ai-in-business/.

4 Techjury, "15 Crucial Data Center Statistics to Know in 2024," January 2, 2024, https://techjury.net/blog/data-center-statistics/.

5 International Energy Agency, "Electricity 2024, Analysis and Forecast to 2026," https://iea.blob.core.windows.net/assets/6b2fd954-2017-408e-bf08-952fdd62118a/Electricity2024-Analysisandforecastto2026.pdf, page 8.

6 Core advantage comparison of highest core count 4th Gen EPYC, the 128C AMD EPYC 9754 (https://www.amd.com/en/product/13371) vs. highest core count 5th Gen Intel Xeon, the 64C Xeon 8592+.

7 All-core boost advantage comparison of 64C AMD EPYC 9554 (https://www.amd.com/en/product/12571) vs. 64C Intel Xeon 8592+, https://www.phoronix.com/image-viewer.php?id=intel-5th-gen-xeon-emeraldrapids&image=intel_xeon_11_lrg.

8 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.

9 Memory capacity advantage comparison of AMD EPYC 9004 Series CPUs (12-channel 6TB with 256GB DDR5) vs. 5th Gen Intel Xeon CPUs (8-channel 4TB with 256GB DDR5). Memory bandwidth advantage comparison of AMD EPYC 9004 Series CPUs (12-channel DDR5-4800 at 460.8GB/s) vs. select 5th Gen Intel Xeon (8-channel DDR5-5600 at 358.4GB/s).

10 AMD Infinity Guard features vary by EPYC™ Processor generations. 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 https://www.amd.com/en/technologies/infinity-guard. GD-183.

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Endnotes