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 $53.7Tn 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 (SystemNet) FP16–INT8 testing; AMD EPYC 9654-based servers vs. Intel® Xeon® Platinum 8490H-based servers.[6A-11]

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.[6A-12]

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 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[6,13,SUB]

THE RIGHT FIT

AMD EPYC PROCESSORS ARE AN 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[6]

EPYC 0106C

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[6]

SPECED 055

COMPUTE WITH CONFIDENCE

A LAYERED APPROACH

THE **ROBUST, MODERN AND MULTILAYERED DEFENSE OF AMD INFINITY GUARD**[14] 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

Learn more at amd.com/ai or contact your AMD sales representative.

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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/2024/03/06/2843023/0/en/Artificial-Intelligence-AI-in-Hardware-Market-Size-to-Reach-USD-473-53-Bn-By-2033.html

2 Forbes Advisor, "Top Businesses Are Using Artificial Intelligence in 2023," April 26, 2023, https://www.forbes.com/advisor/business-software/ai-in-business/

3 Forbes Advisor, "Top Businesses Are Using Artificial Intelligence in 2023," April 26, 2023, https://www.forbes.com/advisor/business-software/ai-in-business/

4 Statista, "U.S. Total Data Center Statistics in Facts, 4,351 Centers," January 2, 2024, https://www.statista.com/topics/2842/us-data-centers/#topicOverview

5 International Energy Agency, "Electricity 2024: Analysis and Forecast to 2026," https://iea.blob.core.windows.net/assets/6b2fd954-2017-4108-a201-9148ce93305b/Electricity2024-Analysisandforecastto2026.pdf, page 8

6 Cost advantage comparison of 4-Socket one-core-per-10-Core EPYC 7543 (4P) and 4-Socket one-core-per-10-Core Intel Xeon Gold 6248 (4P) servers, Dell R7525 (2P) and R7625 (2P) servers, SPECrate®2017_int_base, Dec 2021.

7 All-core boost advantage comparison of 64C 4th EPYC 9554 (https://www.amd.com/en/product/12774) vs. 64C 4th Gen EPYC 9554+ (https://www.amd.com/en/product/14143) SKU specs (amd.com/en/products/cpu/amd-epyc-9554), Jun 2024.

8 All-core boost for 4th EPYC™ processors is the average frequency of all processor cores running a performance mode with efficiency if no vehicle workload. Actual achievable all-core boost will vary based on hardware, software, workloads and other conditions.

9 Memory capacity advantage comparison of AMD EPYC 9654 (96-C) Dual-rank 4TB with 24GB DIMMS vs. 5th Gen Intel Xeon 8592+ (64-C) Dual-rank 4TB with 24GB DIMMS. Memory bandwidth advantage comparison of AMD EPYC 9004 Series CPUs (12-channel DDR5-4800) vs. 5th Gen Intel Xeon CPUs (8-channel DDR5-5600 at 4TB RDIMM).

10 AMD Infinity Guard features vary by EPYC™ processor generation and some security features may require hardware and/or software enablement or specific configurations. Check with your OEM or provider to confirm support of these features. Learn more about AMD Infinity Guard at https://www.amd.com/en/technologies/infinity-guard, GD-183.

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