

INSIDER'S SECRET

YOUR CHOICE OF SERVER PROCESSOR CAN IMPROVE YOUR BUSINESS

Not all CPUs are designed the same, and not all processors perform the same.

The CPU powering your data center server can:

- Impact TCO and bottom line
- Improve time-to-solution and responsiveness to market changes
- Add to your corporate sustainability strategy

START WITH TCO AND BOTTOM LINE

You can lower your TCO and improve your bottom line numbers, by maximizing your data center space, or reducing your data center footprint.

And if you're deploying new servers, you want higher performance, energy efficiency, and platform longevity.

THE ANSWER:

4th Gen AMD EPYC™ processors can deliver the compute performance you need with fewer servers versus competitive solutions—leading to a smaller data center footprint and impacting TCO.

For instance, a 2P EPYC 9654 powered server has 81% higher integer performance and 45% lower than a 2P Xeon 8490H based server.¹ Comparing solutions that achieve 10,000 units of integer performance, the EPYC solution could enable you to:



Reduce data center sprawl and deploy an estimated 45% fewer servers and sockets to stretch your IT budget¹



Cut 3-year TCO by an estimated 54%¹



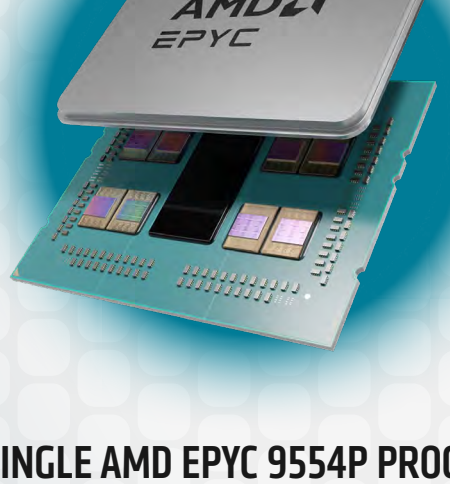
Reduce power usage by the AMD powered solution takes an estimated 45% less power¹

WHAT DOES TCO HAVE TO DO WITH HIGHER COMPUTE DENSITY? AS IT TURNS OUT, A LOT

Take a harder look at single socket servers powered by AMD EPYC processors. They can save power.

They can enable you to:

- Address server underutilization
- Retire systems with unpopulated sockets
- Pay less for software licenses that are charged on a 'per-socket' basis
- Drive down CapEx and OpEx



A SINGLE AMD EPYC 9554P PROCESSOR WITH 64 CORES

has comparable integer performance to a dual Intel Xeon Platinum 8462Y+ processor-based server with 64 total cores at 1.6x the performance per watt.²



REFRESH 33X 2P INTEL XEON PLATINUM 8180-POWERED SERVERS

with either 17x 2P Intel Xeon Platinum 8380-powered servers or 12x 1P AMD EPYC 9654P-powered servers to achieve ~10,000 total SPECrate[®]2017_int_base rack-level score.³

YOUR SERVER'S CPU CAN HELP BUSINESS RESPONSIVENESS

AMD EPYC CPU-based servers can provide faster time to results for cloud, enterprise, and HPC applications with great memory and I/O throughput to drive the most demanding workloads, including:

- Bare-metal, VMs, and container-based deployments
- Ordinary IT infrastructure and web servers
- SDS, databases, and data analytics
- e-commerce and Java mid-tier
- VDI, rendering, and real-time media encoding

Today AMD EPYC processors are available from OEMs, ODMs, and cloud providers, and hold over 300 world records across many workloads.



IT LEADERS HAVE A ROLE TO PLAY IN SUSTAINABILITY

EPYC™ PROCESSOR-POWERED SERVERS

can help reduce energy and greenhouse gas (GHG) emissions. For example, A 2P AMD EPYC 96 core 9654 CPU powered server, to deliver 2000 VMs takes an estimated 35% fewer servers than a 2P Intel Xeon 60 core Platinum 8490H CPUs based solution, reducing power consumption by an estimated 29% over 3 years resulting in an estimated related Greenhouse Gas Emission savings emissions avoided equivalent to 95.08 MTCO₂e (104.81 US tons) which is 34.94 US tons annually.⁴



AMD PLANS TO DELIVER A 30X INCREASE

in energy efficiency for processors and accelerators running HPC and AI-training workloads (2020-2025)⁵

TRY IT YOURSELF: AMD EPYC™ TOTAL COST OF OWNERSHIP (TCO) CALCULATOR TOOLS CAN HELP YOU LEARN HOW AMD-POWERED SERVERS CAN HELP YOU ADDRESS YOUR SUSTAINABILITY GOALS

Click here to compare various configuration deployment scenarios

[CLICK HERE](#)

¹ SP5TCO-032: This scenario contains many assumptions and estimates and, while based on AMD internal research and best approximations, should be considered an example for information purposes only, and not used as a basis for decision making over actual testing. The Bare Metal Server Greenhouse Gas Emissions TCO (total cost of ownership) Estimator Tool - version 6.80, compares the selected AMD EPYC™ and Intel® Xeon® CPU based server solutions required to deliver a TOTAL PERFORMANCE of 10,000 units of integer performance based on the published scores for these specific Intel Xeon and AMD EPYC CPU based servers as of January 10, 2023. This estimation reflects a 3-year time frame with a PUE of 1.7 and a power US power cost of \$0.16 / kWh. This analysis compares a 2P AMD 96 core AMD EPYC 9654 powered server with a SPECrate[®]2017_int_base score of 1790, <https://spec.org/cpu2017/results/res2022q4/cpu2017-20221024-32607.pdf>; to a 2P Intel Xeon 60 core Platinum 8490H based server with a SPECrate[®]2017_int_base score of 991, <https://spec.org/cpu2017/results/res2023q1/cpu2017-20230313-34868.html>.

Environmental impact estimates made leveraging this data, using the Country / Region specific electricity factors from the '2020 Grid Electricity Emissions Factors v1.4 - September 2020', and the United States Environmental Protection Agency 'Greenhouse Gas Equivalencies Calculator'. For additional details, see <https://www.amd.com/en/claims/epyc4#SP5TCO-032>.

² SP5-096A SPECrate[®]2017_int_base based on published scores from www.spec.org as of 3/31/2023. Comparison of published 2P Intel Xeon Platinum 8180 (312 SPECrate[®]2017_int_base, 410 Total TDP W, 56 Total Cores, 0.761 Perf/W, <http://spec.org/cpu2017/results/res2019q2/cpu2017-20190429-13037.html>), published 2P Intel Xeon Platinum 8380 (609 SPECrate[®]2017_int_base, 540 Total TDP W, 80 Total Cores, 1.128 Perf/W, <http://spec.org/cpu2017/results/res2023q1/cpu2017-20230129-33716.html>), published 1P AMD EPYC 9654P (837 SPECrate[®]2017_int_base, 360 Total TDP W, 96 Total Cores, 2.325 Perf/W, <http://spec.org/cpu2017/results/res2023q1/cpu2017-20230227-34476.html>). SPEC[®], SPEC CPU[®], and SPECrate[®] are registered trademarks of the Standard Performance Evaluation Corporation. See www.spec.org for more information.

³ SP5-090A SPECrate[®]2017_int_base based on published scores from www.spec.org as of 3/31/2023. Comparison of published 2P Intel Xeon Platinum 8180 (312 SPECrate[®]2017_int_base, 410 Total TDP W, 56 Total Cores, 0.761 Perf/W, <http://spec.org/cpu2017/results/res2019q2/cpu2017-20190429-13037.html>), published 2P Intel Xeon Platinum 8380 (609 SPECrate[®]2017_int_base, 540 Total TDP W, 80 Total Cores, 1.128 Perf/W, <http://spec.org/cpu2017/results/res2023q1/cpu2017-20230129-33716.html>), published 1P AMD EPYC 9654P (837 SPECrate[®]2017_int_base, 360 Total TDP W, 96 Total Cores, 2.325 Perf/W, <http://spec.org/cpu2017/results/res2023q1/cpu2017-20230227-34476.html>). SPEC[®], SPEC CPU[®], and SPECrate[®] are registered trademarks of the Standard Performance Evaluation Corporation. See www.spec.org for more information.

⁴ SP5TCO-035A. As of 01/18/2023 based on AMD Internal analysis using the AMD EPYC™ SERVER VIRTUALIZATION and GREENHOUSE GAS EMISSIONS TCO ESTIMATION TOOL - version 12.00 estimating the cost and quantity of 2P AMD 96 core EPYC™ 9654 powered server versus 2P Intel® Xeon® 60 core Platinum 8490H based server solutions required to deliver 2000 total virtual machines (VM), requiring 1 core and 8GB of memory per VM for a 3 year period. This includes VMware software license cost of \$6,558.32 per socket + another license for each CPU over 32 cores. This is the 'legacy' VMware licensing formula that only requires 2 licenses max per CPU socket. Environmental impact estimates made leveraging this data, using the Country / Region specific electricity factors from the '2020 Grid Electricity Emissions Factors v1.4 - September 2020', and the United States Environmental Protection Agency 'Greenhouse Gas Equivalencies Calculator'. This scenario contains many assumptions and estimates and, while based on AMD internal research and best approximations, should be considered an example for information purposes only, and not used as a basis for decision making over actual testing. For additional details, see <https://www.amd.com/en/claims/epyc4#SP5TCO-035A>.

⁵ Includes AMD high-performance CPU and GPU accelerators used for AI training and High-Performance Computing in a 4P hosted configuration. Goal calculations based on performance scores as measured by standard performance metrics (HPC: Linpack DGEMM kernel FLOPS with 4k matrix size, AI training: lower precision floating point math GEMM kernels such as FP16 or BF16 FLOPS operating on 4k matrices) divided by the rated power consumption of a representative accelerated compute node including the CPU host + memory and 4 GPU accelerators.