ACCELERATE AUTOMOTIVE WORKLOADS IN THE CLOUD WITH AMD & MICROSOFT AZURE®

Optimize performance, accelerate innovation, impact UX and TCO with AMD and Microsoft Azure®

WHY AMD + AZURE

AMD EPYC™ CPU based Azure solutions address issues that are specific to the automotive industry, such as vehicle engineering, aerodynamic and physics simulations, sensor performance, and autonomous driving software. It offers a wide variety of specialized virtual machines for these areas and many others.

- AMD EPYC™ processors power the most energy efficient servers helping reduce energy costs[1]
- Broad cloud workload capabilities on AMD EPYC™ CPU-based Azure VMs
- Range of available AMD powered Azure services to support automotive

HOW AZURE HPC SUPPORTS THE AUTOMOTIVE INDUSTRY

Simulate all aspects of vehicle engineering cost-effectively and at scale with highly secure infrastructure.

Enhance engineering, aerodynamic, and physics simulations with Azure data analytics and ML tools.

Quickly test sensor performance using advanced hardware and autonomous driving software over billions of simulated miles.

AMD EPYC™ CPU BASED AZURE® VMS FOR AUTOMOTIVE

INSTANCE	HX-SERIES	HBV4-SERIES	HBV3-SERIES
AMD CPU	4th Gen AMD EPYC™	4th Gen AMD EPYC™	3rd Gen AMD EPYC™
VCPUS AVAILABLE	16-120	24-176	16-120
PEAK CPU FREQUENCY*	3.7GHz	3.7GHz	3.7GHz
TOTAL MEMORY	448GB	688GB	1408GB
LOCAL STORAGE	2 - 1.82TB	2 - 1.82TB	2 - 1.82TB

DRIVING FEA INNOVATION

2X EPYC™ 9654 (96-CORE) VS 2X INTEL XEON PLATINUM 8380 (40-CORE)

ANSYS® LS-Dyna® [2]

~2.44x

(R1 Non-Linear FEA)
Performance

Altair® Radioss® [3]

~2.6x

(Neon)
Explicit Performance

ANSYS® Mechanical™ [4]

~1.7x

(R2)
Implicit FEA Performance

Whether your customers are working to automate crash-test or multiphysics simulations, AMD EPYC™ CPU based Azure® VMs empower vehicle engineers to develop cost-effective, robust, tightly coupled HPC simulations.

* https://learn.microsoft.com/en-us/azure/virtual-machines/hbv4-series

1. EPYC-028B: SPECpower_ssj® 2008, SPECrate®2017_int_energy_base, and SPECrate®2017_fp_energy_base based on results published on SPEC's website as of 11/10/22. VMmark® server power-performance (PPKW) based results published at https://www.vmware.com/products/vmmark/results3x1.html?sort=score. The first 74 ranked SPECpower_ssj®2008 publications with the highest overall efficiency overall ssj_ops/W results were all powered by AMD EPYC processors. For SPECrate®2017 Integer (Energy Base), AMD EPYC CPUs power the first 4 of 5 SPECrate®2017_int_energy_base performance/system W scores. For SPECrate®2017 Floating Point (Energy Base), AMD EPYC CPUs power the first 8 of 9 SPECrate®2017_fp_energy_base performance/system W scores. For VMmark® server power-performance (PPKW), have the top two results for 2- and 4-socket matched pair results outperforming all other socket results. See https://www.amd.com/en/claims/epyc3x#faq-EPYC-028B for the full list. More information about SPEC® is available at http://www.spec.org. SPEC, SPECrate, and SPECpower are registered trademarks of the Standard Performance Evaluation Corporation. VMmark is a registered trademark of VMware in the US or other countries.

2. SP5-114: LS-DYNA® Version 2021 R1 Nonlinear FEA benchmark comparison based on AMD measurements as of 09/18/2022. Tests run: obd10m, car2car, obd10m-short, ls-3cars and ls-neon. 2P AMD EPYC 9654 (96 cores/socket, 192 cores/node); 1.5 TB (24x) Dual-Rank DDR5-4800 64GB DIMMs, 1DIMM per channel; 1 x 256 GB SATA (OS) | 1 x 1 TB NVMe (data); BIOS Version 1001C, SMT=off, Determinism=performance, NPS=4, TDP/ PPT=400 versus 2P Intel Xeon Platinum 8380 (40 cores/socket, 80 cores/node); 1 TB (16x) Dual-Rank DDR4-3200 64GB DIMMs, 1DIMM per channel; 1 x 256 GB SATA (OS) | 1 x 1 TB NVMe (data); BIOS Version 1.6.5, SMT=off, HPC Profile. Common: RHEL 8.6 OS settings: Clear caches before every run, NUMA balancing 0, randomize_va_space 0. Results may vary due to factors including system configurations, software versions and BIOS settings.

3. SP5-036: Radioss™ neon workload benchmark comparison based on AMD measurements as of 10/4/2022. Configurations: 2x 40-core Intel Xeon Platinum 8380 vs. vs. 2x 96-core EPYC 9654 for ~2.59x the solver speedup performance. Results may vary.

4. SP5-129: Mechanical® Release 2022 R2 test cases benchmark comparison based on AMD measurements as of 10/19/2022. 2P 40-core Intel Xeon Platinum 8380 vs. 2P 96-core EPYC 9654 for ~1.76x the rating performance. System Configurations: 2P AMD EPYC 9654 (96 cores/socket, 192 cores/node); 1.5 TB (24x) Dual-Rank DDR5-4800 64GB DIMMs, 1DIMM per channel; 1 x 256 GB SATA (OS) | 1 x 1 TB NVMe (data); BIOS Version 1002, SMT=off, Determinism=performance, NPS=4, TDP/ PPT=400; RHEL 8.6; OS settings: Clear caches before every run, NUMA balancing 0, randomize_va_space 0 vs. 2P Intel Xeon Platinum 8380 (40 cores/socket, 80 cores/node); 1 TB (16x) Dual-Rank DDR4-3200 64GB DIMMs, 1DIMM per channel; 1 x 256 GB SATA (OS) | 1 x 1 TB NVMe (data); BIOS Version 1.6.5, SMT=off, HPC Profile; OS settings: Clear caches before every run, NUMA balancing 0, randomize_va_space 0. Results may vary based on factors such as software version, hardware configurations and BIOS version and settings.