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

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

WHY AMD + AZURE

To meet the challenges manufacturers face, take a data-centric approach with AMD CPU based Azure VMs. Provide personalized experiences, gain visibility across end-to-end supply chain, and build innovative business models, with secure and scalable manufacturing cloud-based technology.

- 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 manufacturing

ACCELERATE INNOVATION

Help ease the cost of practical prototyping with extensive digital design and review cycles to catch flaws and improve designs while still in 3D.

Enable fast lead development time and help advance sustainability goals.

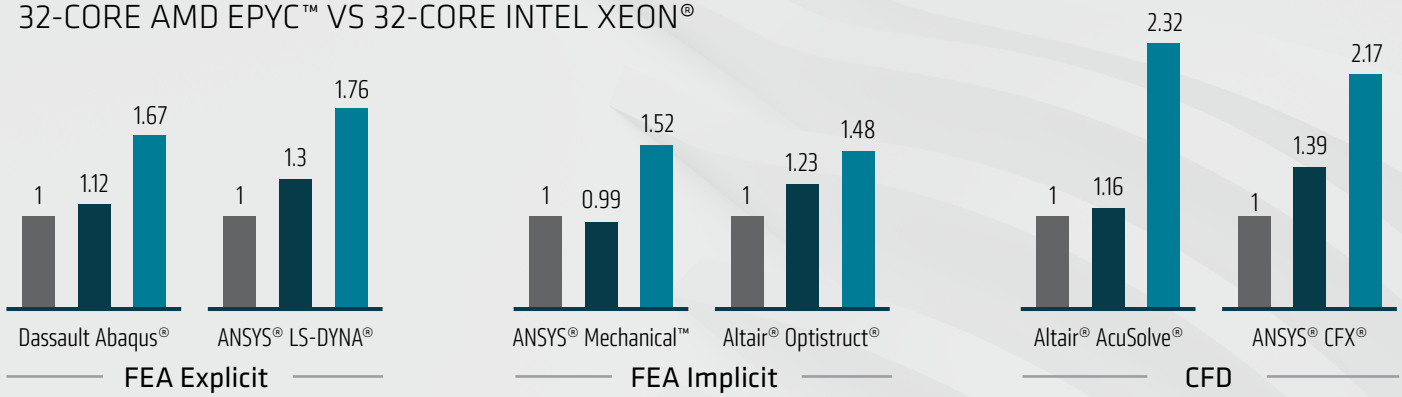
Reel-in labor and material costs and raise part design accuracy through rapid prototyping created directly from 3D CAD design.

AMD EPYC™ CPU BASED AZURE® VMS FOR MANUFACTURING

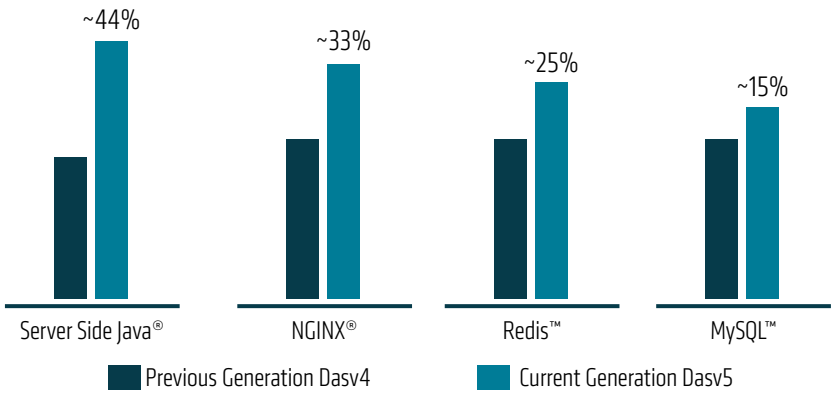
INSTANCE	HX-SERIES	HBV4-SERIES	HBV3-SERIES
AMD CPU	4th Gen AMD EPYC™	4th Gen AMD EPYC™	3rd Gen AMD EPYC™
VCPUS AVAIL-ABLE	16-120	24-176	16-120
PEAK CPU FREQUENCY*	3.7GHz	3.7GHz	3.7GHz
TOTAL MEMORY	448GB	688GB	1408GB
LOCAL STORAGE	2 - 1.82TB	2 - 1.82TB	2 - 1.82TB

MANUFACTURING PERFORMANCE LEADERSHIP

32-CORE AMD EPYC™ VS 32-CORE INTEL XEON®



OUTSTANDING GENERAL PURPOSE PERFORMANCE



Use Cases

- Office Productivity
- Apps with Sensitive Data
- Business Apps
- Enterprise Workloads

Workloads

- Data Analytics
- Database Workloads
- Web Serving
- Remote Desktops

* 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.

SP5-082: HPC ISV application workload benchmark comparisons based on AMD measurements of 19 applications/81 workloads as of 11/10/2022. 2P 32-core EPYC 9374F outperforms 2P 32-core Intel Xeon Platinum 8362 by ~1.73x the average scaling performance. 2P 32-core EPYC 75F3 shown at 1.1x the average scaling for reference. Results may vary.

MLNC-012 - Results as of 10-28-2021 based on AMD internal tests using Multi JVM configuration for Server Side Java benchmark. Azure D16asv5 virtual machine powered by 3rd Gen EPYC processors generated a median result of 13293 critical Java operations per second (31179 Max Java operations per second) and Azure D16asv4 virtual machine powered by 2nd Gen EPYC processors generated a median result of 9237 critical Java operations per second (26867 max Java operations per second). These configurations used Ubuntu 20.04.2 LTS and OpenJDK 64-bit Server VM, version 16.0.1. Cloud performance results presented are based on the test date in the configuration and are in alignment with AMD internal bare-metal testing factoring in cloud service provider overhead. Results may vary due to changes to the underlying configuration, and other conditions such as the placement of the VM and its resources, optimizations by the cloud service provider, accessed cloud regions, co-tenants, and the types of other workloads exercised at the same time on the system. GD-174

MLNC-013: Results as of 10-28-2021 based on AMD internal tests on NGINX Open Source 1.18.0. Azure D16asv4 virtual machine powered by 3rd Gen AMD EPYC CPUs running Ubuntu® 20.04.2 LTS generated a median result of 706660 requests per second and Azure D16asv5 virtual machine powered by 2nd Gen EPYC CPUs running Ubuntu 20.04.2 LTS generated a median result of 936335 requests per second. Cloud performance results presented are based on the test date in the configuration and are in alignment with AMD internal bare-metal testing factoring in cloud service provider overhead. Results may vary due to changes to the underlying configuration, and other conditions such as the placement of the VM and its resources, optimizations by the cloud service provider, accessed cloud regions, co-tenants, and the types of other workloads exercised at the same time on the system.

MLNC-014: Results as of 10-28-2021 based on AMD internal tests on MySQL™ 8.0.26 HammerDB 4.2 TPROC-C workload derived from the TPC-C™ specification. Azure D16asv5 virtual machine powered by 3rd Gen AMD EPYC CPUs running Ubuntu® 20.04.2 LTS generated a median result of 649020 new orders per minute (NOPM) and Azure D16asv4 virtual machine powered by 2nd Gen EPYC CPUs running Ubuntu 20.04.2 LTS generated a median result of 564456 new orders per minute (NOPM). Cloud performance results presented are based on the test date in the configuration and are in alignment with AMD internal bare-metal testing factoring in cloud service provider overhead. Results may vary due to changes to the underlying configuration, and other conditions such as the placement of the VM and its resources, optimizations by the cloud service provider, accessed cloud regions, co-tenants, and the types of other workloads exercised at the same time on the system. TPC, TPC Benchmark and TPC-C are trademarks of the Transaction Processing Performance Council.

MLNC-015: Results as of 10-28-2021 based on AMD internal tests on Redis™ running redis-benchmark. Azure D16asv5 virtual machine powered by 3rd Gen AMD EPYC CPUs running Ubuntu® 20.04.2 LTS generated a median result of 936335 "SET" transactions per second and Azure D16asv4 virtual machine powered by 2nd Gen AMD EPYC CPUs running Ubuntu 20.04.2 LTS generated a median result of 794281 "SET" transactions per second Cloud performance results presented are based on the test date in the configuration and are in alignment with AMD internal bare-metal testing factoring in cloud service provider overhead. Results may vary due to changes to the underlying configuration, and other conditions such as the placement of the VM and its resources, optimizations by the cloud service provider, accessed cloud regions, co-tenants, and the types of other workloads exercised at the same time on the system.