Meeting the challenges of AI workloads with the Dell AI portfolio

A comparison of the Dell AI portfolio vs. similar offerings from HPE

AI adoption presents new challenges for businesses and their data center IT staff, including:

- Addressing the existing skill gaps in their current staff through training or external hiring
- Understanding the data preparation needs of AI, including the quality, quantity, location, and current state of the business’s data
- Assessing business goals to determine which AI models and implementations will provide benefits
- Assessing the computational, networking, and storage needs of the planned AI systems and acquiring these systems

With AI-ready portfolios, infrastructure vendors such as Dell Technologies and HPE offer integrated solutions that encompass the entire AI lifecycle. We researched publicly available information about both the Dell and HPE AI portfolios, and examined benchmark testing from MLPerf®. We found that Dell is poised to help businesses embrace AI with a portfolio comprising high-performing server and storage options, validated solutions, and professional services that guide the process from planning to production.

AI model benchmark performance: MLPerf result comparison

Publicly available MLPerf® Benchmark testing shows that offerings in the Dell AI portfolio offer consistent, strong performance for AI workloads. MLPerf® tests performance for both training and inferencing on several AI models. The data referenced in this report is based on MLPerf® v3.1 Inference Datacenter results published on the MLCommons® website from November 2023.¹ We compared both 8- and 4-GPU servers and include one result from each category in this summary; to see them all, read the full report at https://facts.pt/zPmSx4c.


Comparing MLPerf performance for eight-GPU servers

In the MLPerf® v3.1 results for eight-GPU servers, the Dell PowerEdge XE9680 with NVIDIA SXM5 H100 GPUs outperformed the HPE ProLiant XL675d Gen10 Plus with NVIDIA SXM4 A100 GPUs by up to 4.25x (see Figure 1).

![Normalized MLPerf® results: Dell PowerEdge XE9680 with H100 SXM5 vs. HPE ProLiant XL675d Gen10 Plus with A100 SXM4](image1)

Comparing MLPerf performance for four-GPU servers

The Dell PowerEdge XE8640 server with four NVIDIA H100 SXM5 GPUs achieved the highest AI throughput among all four-GPU submissions in nine different categories. As Figure 2 shows, compared to the HPE ProLiant DL380a server, it scored up to 2.07 times as high on the MLPerf® benchmark.

![Normalized MLPerf® results: Dell PowerEdge XE8640 with H100 SXM5 vs. HPE ProLiant DL380a Gen11 with H100 PCIe](image2)

In brief: Additional contributors to AI success

AI models require more than high performance servers for success. You must also consider storage for unstructured data and professional services to plan, prepare, deploy, and manage your AI solution. The Dell portfolio offers storage for AI datasets with the PowerScale series for file storage and Elastic Cloud Storage or ObjectScale storage for object storage.

Organizations can reap the advantages of Dell’s professional and consulting services for AI, which offers some services that HPE does not, such as data preparation. The Dell portfolio also includes Validated Designs for AI, which takes the guesswork out of designing and deploying AI.

*Verified MLPerf. score of v3.1 Inference Closed. Retrieved from [https://mlcommons.org/benchmarks/inference-datacenter](https://mlcommons.org/benchmarks/inference-datacenter) 5 December 2023, entries 3.1-0069, 3.1-0085, 3.1-0067, and 3.1-0084. The MLPerf. name and logo are registered and unregistered trademarks of MLCommons. Association in the United States and other countries. All rights reserved. Unauthorized use strictly prohibited. See [www.mlcommons.org](http://www.mlcommons.org) for more information.