



# 4th Generation AMD EPYC™ Processors Accelerate Compute-Intensive Financial AI Workloads

Prowess Consulting benchmark tests demonstrate how generation-on-generation improvements in AMD EPYC processors accelerate the kinds of AI workloads that are common in the financial industry.

The financial industry has always been computationally intense. Proprietary applications, artificial intelligence (AI), and machine learning (ML) have become integral tools in nearly every part of finance:

- Risk assessment and management
- Credit decision making
- Underwriting
- Advisory services and personalized banking
- Customer service
- Trading
- Fraud detection and prevention

Computational needs continue to increase in all these corners of the financial industry. However, application performance can be driven by many different variables. Speeding up the entire AI pipeline is essential to speeding up AI workloads in finance and other industries. A fundamental way to do this is to harness processor-performance improvements to help financial firms keep up with their increasing computational needs for AI workloads.

## 4th Generation AMD EPYC Processors Bring Significant Performance Gains

Testing conducted by Prowess Consulting engineers on a 10 GB dataset showed that newer Dell™ PowerEdge™ R6625 servers powered by 64-core 4th Generation AMD EPYC™ 9554 processors have up to 3.6x greater performance than Dell PowerEdge R6525 servers powered by 64-core 2nd Generation AMD EPYC 7702 processors.<sup>1</sup>

### Quantitative results

Dell™ PowerEdge™ R6625 servers powered by 4th Generation AMD EPYC™ processors have

up to  
**3.6x**  
greater  
performance

for artificial intelligence (AI) workflows than PowerEdge R6525 servers powered by 2nd Generation AMD EPYC processors.<sup>1</sup>

## AI Workload

Prowess Consulting used a benchmark similar to TPCx-AI from TPC to measure performance for the computationally intensive workloads typical in the financial industry. The benchmark measures the performance of an end-to-end AI and data science platform, which emulates the behavior of financial AI solutions in current production environments.

This benchmark measures both throughput and performance for the entire AI pipeline. This means that PowerEdge R6625 servers with 4th Generation AMD EPYC processors are not just more performant than those with previous-generation AMD EPYC processors, but that they also help accelerate the entire AI pipeline from end to end. PowerEdge R6625 servers accelerate AI workloads across the entire pipeline through a number of system-wide improvements over older PowerEdge R6525 servers: high-core-count 4th Generation AMD EPYC processors, faster memory bus, and speedier PCIe® interconnects. Paired with these improvements are register bandwidth optimization and support for INT8 inferencing, which also greatly speed up AI workloads in many different phases of the AI pipeline. All of this is particularly relevant for financial firms that can have multiple long pipelines to address all of their AI needs.

## Dell™ PowerEdge™ R6625 Servers, Powered by AMD EPYC Processors,



## Bring Power and Security to Finance

- Up to 96-core CPUs and 3 TB DDR5 memory, along with fast PCIe 5.0 interconnects.<sup>2</sup>
- Strong, built-in security technologies, including AMD® Secure Memory Encryption (AMD® SME), AMD® Secure Encrypted Virtualization-Encrypted State (AMD® SEV-ES), and a silicon root of trust from the Integrated Dell™ Remote Access Controller (iDRAC). Plus, Dell secure supply chains are backed by Dell™ Secured Component Verification (SCV).

## Get the full story by reading the technical research report:

[“Accelerate Compute-Intensive Financial Workloads.”](#)

<sup>1</sup> Based on testing by Prowess Consulting as of February 2023. For configuration details, see “Behind the Report: Accelerate Compute Intensive Financial Workloads.” 2023. [www.prowesscorp.com/project/dell-amd-servers-accelerate-and-secure-finance-workloads/](http://www.prowesscorp.com/project/dell-amd-servers-accelerate-and-secure-finance-workloads/).

<sup>2</sup> Source: Dell™ PowerEdge™ R6625 rack server features. [www.dell.com/en-us/shop/servers-storage-and-networking/new-poweredge-r6625-rack-server/spd/poweredge-r6625/pe\\_r6625\\_16737\\_vi\\_vp#features\\_section](http://www.dell.com/en-us/shop/servers-storage-and-networking/new-poweredge-r6625-rack-server/spd/poweredge-r6625/pe_r6625_16737_vi_vp#features_section).



The analysis in this document was done by Prowess Consulting and commissioned by Dell Technologies.

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