EDB | SUPERMICRO

Better Together:
EDB Postgres® AI and Supermicro Unlock 6x Higher Returns on Your Database Investment

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For 20 years, EnterpriseDB (EDB) has been making Postgres work for the enterprise by building advanced features and extensions, offering expert tuning and 24/7 support, and enabling mission-critical high availability, security, compliance controls, and observability. EDB Postgres AI is swiftly gaining momentum as a trusted data platform to unify and enhance transactional, analytical, and AI workloads. But experienced operators understand that getting the best from Postgres means matching a great database with the right hardware foundation.

Supermicro, the premier provider of high-performance, high-efficiency Server Building Block Solutions®, recently joined EDB in a strategic relationship. EDB and Supermicro are **better together**: running EDB Postgres AI on Supermicro hardware enables you to optimally harness the full power of Postgres. This report quantifies this benefit.

The benchmark vets a particular software-hardware combination to measure the difference between a simple install and a fully tuned configuration. **EDB's expertly tuned Postgres on Supermicro server systems delivered 6x the transaction throughput at peak level versus the standard installation of community Postgres. It also enabled up to 90% better value versus Amazon EC2.** Read on for more details about the methodology and results.

Benchmarking Throughput and Price/Performance

Methodology

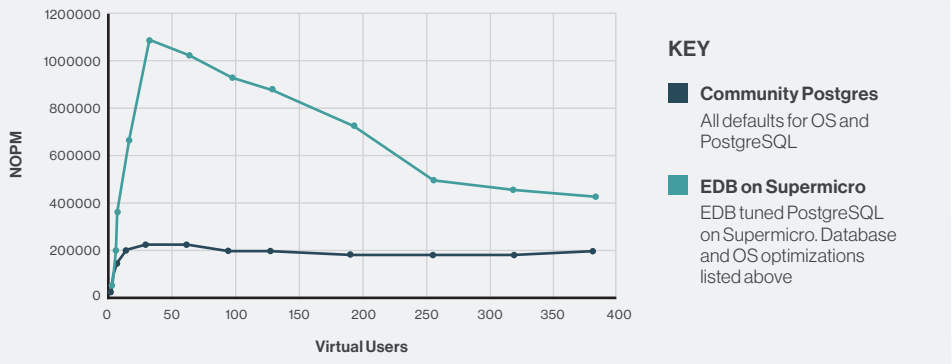
EDB Engineering tested the Supermicro server in rackmount form, consuming only two rack units of space in the data center:

Model	Supermicro SYS-221H-TNR 2U Rackmount X13 Hyper SuperServer
CPU	2x Intel® Xeon® Gold 6538N @ 2.10 GHz
RAM	1024GB
Storage	4x SSD U.2 NVME 7.68 TB PCIe v5 (raid10 – Postgres Data) 2x SSD U.2 NVME 1.92 TB PCIe v5 (striped – Postgres WAL) 1x SSD M.2 NVME 980GB PCIe v4 (operating system)
Engine	EDB Postgres Advanced Server Version 16

To generate load and capture results, the team used HammerDB. HammerDB is a leading open source benchmark tool supporting many databases, including PostgreSQL. This exercise performed transactions without any user delay, driving the maximum number of transactions and input/output operations per second (IOPS). Real-world scenarios have user delay, but this approach helps observe the performance of the system under the most demanding workload. A new-orders-per-minute (NOPM) metric was used to measure performance during benchmarking. The test was run with an increasing number of virtual users to identify the trend and peak of performance.

Transaction Throughput: EDB Enhanced Postgres vs. Out-of-the-Box Install

The results of the benchmark study show that running Postgres with EDB's expert tuning on Supermicro enabled **6x the transaction throughput at peak level versus an out-of-the-box configuration.**



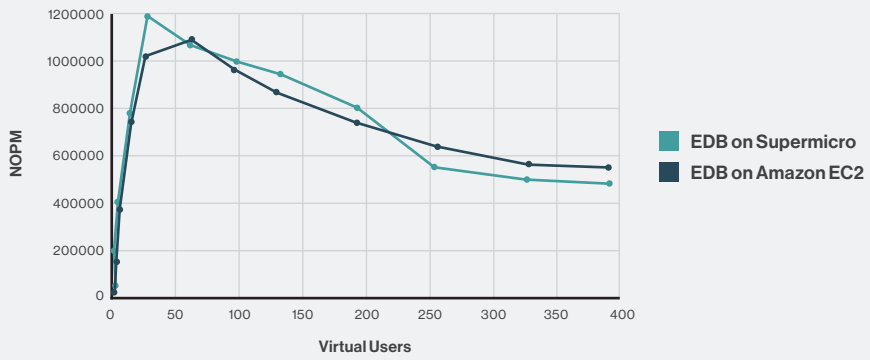
Price/Performance: EDB on Supermicro vs. Amazon EC2

The study also compared the value of EDB on Supermicro versus Postgres in Amazon's public cloud using Amazon EC2. Price/performance is the measure of value, providing a number to calculate a product's ability to deliver performance for its associated cost. Lower price/performance ratios indicate better returns, as those products require a lower cost to achieve performance.

These Amazon EC2 specifications were used for comparison:

Instance Type	I4i.metal (storage-optimized instance family)
CPU	2x Intel® Xeon® Platinum 8375C @ 2.90GHz
RAM	1024GB
Storage	4x Amazon EC2 NVMe Instance Storage 3.75TB (raid10 – Postgres Data) 4x Amazon EC2 NVMe Instance Storage 3.75TB (raid10 – Postgres WAL) 1x Amazon Elastic Block Store 500GB gp3 16k IOPS 1GB/sec Bandwidth (OS)
Engine	EDB Postgres Advanced Server Version 16

The Amazon EC2 system was configured as closely as possible to the Supermicro system, though there were slight differences noted in the specifications above. The table below shows peak performance comparing the value and cost-effectiveness of both systems.



System	Max Performance (NOPM)	Infrastructure Cost (3-Year Projection)	Price per Performance
EDB on Supermicro	1,193,289	$32,690*	0.027
EDB on EC2 (On-Demand Pricing)	1,123,371	$321,000**	0.29
EDB on Supermicro vs. Postgres on EC2 (On-Demand Pricing)	6.22%	-89.82%	**-90.41%**
EDB on EC2 (Savings Plan)	1,123,371	$177,671**	0.16
EDB on Supermicro vs. Postgres on EC2 (Savings Plan)	6.22%	-81.60%	**-82.68%**

* Includes Supermicro warranty and onsite service for three years but does not include costs related to hosting physical hardware (data center costs, operations, electricity, etc.).

** Amazon EC2 pricing was calculated for three years in the us-east-1 region. EC2 On-Demand pricing reflects standard pricing; EC2 Savings Plan reflects a discount with a three-year commitment.

According to the test, running EDB Postgres AI on Supermicro enabled **up to 90% better value than running EDB on Amazon EC2. Even with a three-year commitment on Amazon EC2, EDB on Supermicro offers up to 83% better price/performance.**

Featured Use Cases

Legacy App Modernization »

Break free from the high cost, limited scalability, and lack of interoperability of legacy systems to support next-gen innovation. EDB Postgres AI enables modern data infrastructure for next-gen application development in a sovereign environment. Break up monolithic applications while adopting technology compatible with modern data stacks, reducing TCO up to 80% versus legacy systems, and eliminating up to 95% of Oracle-to-Postgres application rewrites. Achieve enterprise-grade security in a sovereign, cost-effective environment.

Data and AI Sovereignty »

It's essential to have full control over your data and how you secure it, especially as more countries introduce strict localization and sovereignty requirements. Bringing sensitive data to cloud-based models can undermine data governance. Achieve data sovereignty and future-proof your data platform for growth and scale as you simplify the management of hundreds of database clusters with end-to-end automation and advanced observability features that keep databases secure, ensure performance, and provide up to 99.999% availability.

Conclusion

Enterprises looking to reduce database management costs, increase business agility, and modernize their data infrastructure are increasingly standardizing on PostgreSQL for its flexibility, extensibility, and robust feature sets. Finding benefits in Postgres is easy, but getting the best possible price/performance for a particular application's needs is more complex. EDB and Supermicro work together to solve that while providing up to **6x the transaction throughput of community Postgres installs and up to 90% better value than running on Amazon EC2 to help you reduce costs and increase performance.**

Leveraging EDB's enterprise-grade Postgres on powerful, reliable Supermicro server hardware optimizes your workloads. With EDB Postgres AI on a recommended Supermicro configuration, software installation, and expert performance tuning, you optimize price/performance and throughput; increase operational efficiency; and reduce the time and effort required to deploy, configure, and tune a database so you can leverage open source technologies for mission-critical applications.

Why Customers Love EDB

Overdeliver for Your Global User Base

Support the most demanding applications, anywhere and at any time

Hybrid Strategy That Works for You

Deploy anywhere: *public cloud, hybrid cloud, and bare metal*

Let Your Data Thrive

Modernize legacy systems and embrace the Postgres-led world

One Interface to Rule Them All

Safely and securely observe, learn, and act across your data estate—from anywhere

Ready to accelerate your Postgres journey?

Scan the QR code to get started.

EDB

EDB provides a data and AI platform that enables organizations to harness the full power of Postgres for transactional, analytical, and AI workloads across any cloud, any time.

For more information, visit www.enterprisedb.com.