



Penguin Computing and WekaIO Break Eight Performance Records on the STAC-M3 “Tick Analytics” Benchmark

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SAN JOSE, Calif. – June 10, 2019 – [Penguin Computing](#), Inc., leading provider of high-performance computing (HPC), artificial intelligence (AI), enterprise data center, and cloud solutions, today announced that its new integrated solution with [WekaIO](#), the innovation leader in high-performance, scalable file storage for data-intensive applications, has broken eight records on the [STAC-M3™ Benchmark](#). The STAC-M3 Antuco and Kanaga Benchmark Suites are the industry standard for testing solutions that enable high-speed analytics on time series data, such as tick-by-tick market data.

By combining Penguin Computing® [Relion®](#) servers and [FrostByte® Storage](#) with the WekaIO File System, the companies have affirmed that this integrated solution is ideal for algorithmic trading and quantitative analysis workloads, common in financial services.

The high-performance analytics workloads were run using Kx kdb+ 3.6 database system distributed on Penguin Computing Tundra Extreme Scale Relion Compute Servers. The record-breaking storage performance was provided by Penguin Computing's FrostByte Storage Solution, running WekaIO Matrix File System (v3.2.2) Software, utilizing Relion NVMe optimized servers based on an Intel® Xeon® Scalable Processor, and using Mellanox EDR 100Gb/s Infiniband switch systems. The tests were run on the baseline benchmark suite Antuco and the scaling suite Kanaga, a test suite with five years of stock market data. The system had a combined performance density of up to 87.5GB/sec available bandwidth to the client nodes, 40.5 GB/sec of actual throughput (STAC-M3.β1.1T.5YRHIBID), and 2.5M 4K IOPS in 8U, with the ability to fully distribute data, metadata and system services, as well as super low file system latency that leverages high-speed networks and NVMe-optimized storage. The FrostByte Storage Solution delivered record-breaking performance setting eight STAC-M3 Benchmark world records on the scaling suite Kanaga and delivered the highest throughput ever achieved on STAC-M3 with kdb+.

“Penguin Computing has the ability to incorporate and optimize different technologies effectively and with greater flexibility than others in the market. The Penguin Computing FrostByte integrated solution featuring the WekaIO File System is designed, engineered and vetted to deliver a high-performance storage solution for Kx kdb+,” said Dr. Kevin Tubbs, Sr. Director of Technology, Advanced Solutions Group at Penguin Computing. “To break eight STAC-M3 performance records is an incredible achievement and a testament to the innovative architecture of the WekaIO File System and leading HPC and AI solutions from Penguin Computing. For IT supporting different applications and Kx kdb+ time-series databases, this platform is an unbeatable combination for performance, scale and ease of management.”

“There’s now a proliferation of software and hardware configurations aiming to support I/O intensive workloads,” commented David Floyer, Co-founder and CTO at Wikibon. “But to meet the performance demands of real-time and historical analytics in kdb+ environments, storage systems must offer both high performance and low latency. The results from the STAC-M3 Benchmark should help IT in making an informed decision when architecting storage systems to support algorithmic trading and quantitative analytics workloads.”

“Traditionally, IT organizations have used block-based storage solutions for their trading databases, rather than compromise performance due to network and file system latencies. The result has been large investments in specialized hardware and software to run different applications,” said David Hiatt, Director of Business Development and Alliances at WekaIO. “Now with the STAC-M3 Benchmark results, we have proven that with the WekaIO File System on Penguin Computing Relion servers and FrostByte storage delivers better application performance for Kx kdb+ by running in distributed mode over a network than with traditional block storage, with the additional benefit of simultaneously supporting other applications on the same platform. That’s a huge leap in application acceleration and in simplifying the storage infrastructure for financial services.”

About Penguin Computing

For 20 years, the Penguin Computing team of artificial intelligence (AI), engineering, and computer science experts has reimagined how startups, Fortune 500, government, and academic organizations solve complex technology challenges and achieve their organizational goals. Penguin Computing is focused on open platforms, including Open Compute Project (OCP) systems. We specialize in innovative on-premise high-performance computing (HPC), bare metal HPC in the cloud, AI, and storage technologies coupled with leading-edge design, implementation, hosting, and managed services including sys-admin and storage-as-a-service, and highly rated customer support. More information at www.penguincomputing.com. Penguin Computing, Relion and FrostByte are trademarks or registered trademarks of Penguin Computing, Inc. Intel and Xeon are trademarks of Intel Corporation or its subsidiaries in the U.S. and/or other countries. Penguin Computing is a subsidiary of [SMART Global Holdings Inc.](#), (NASDAQ: SGH).

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