ENABLING THE NEXT FRONTIER OF LIFE SCIENCES BREAKTHROUGHS

Supermicro & Qumulo Solutions for Life Sciences

A + Single AMD EPYC™ 7003/7002 Series All-Flash NVMe Platform - AS -1114S-WN10RT

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Executive Summary

Life Science and Bioinformatics organizations pursue their research objectives in myriad ways. However, they are all characterized by massive volumes of machine-generated file data pipelined into downstream processes for analysis. The need for efficient, high-performance processing of file-based data is at the heart of innovation and discovery in life sciences.

Whether running specialized life science workflows, such as genomic sequencing and analyzing drug discovery, microscopy, 3D imaging, blood analysis, proteomics, and biomedical research, or forecasting and modeling, they are all experiencing an unyielding explosion in need of more storage and faster performance.

SUPERMICRO

Supermicro (Nasdaq: SMCI), the leading innovator in high-performance, high-efficiency server and storage technology is a premier provider of advanced server Building Block Solutions® for Enterprise Data Center, Cloud Computing, Artificial Intelligence, and Edge Computing Systems worldwide. Supermicro is committed to protecting the environment through its "We Keep IT Green®" initiative and provides customers with the most energy-efficient, environmentally-friendly solutions available on the market. www.supermicro.com

Their challenge is simple: The legacy storage systems they have been using for years cannot keep up with the workflow demands for petabyte-scale and billions of objects.

From a minimum of a four-node cluster configurations to a maximum of 100 node cluster configurations, customers can go from 68TB to 11.4PB usable capacity in a single enterprise file storage environment.

Supermicro and Qumulo Solution for Life Sciences Market

Supermicro's highly performant and economic All-NVMe platform is powered by Qumulo, a file data platform designed from the ground up for the new era of multi-petabyte data scale on-prem and in the cloud. As a result, customers who need performance and scale in a small footprint at the right price can build an economical yet powerful cluster on any of the three Supermicro configurations. A 30TB node configuration for smaller workloads and edge computing use cases. A 76TB node configuration for midrange capacity and density use cases. Or the highly dense and highly economical 153TB platform for workloads that need the highest performance and scale.

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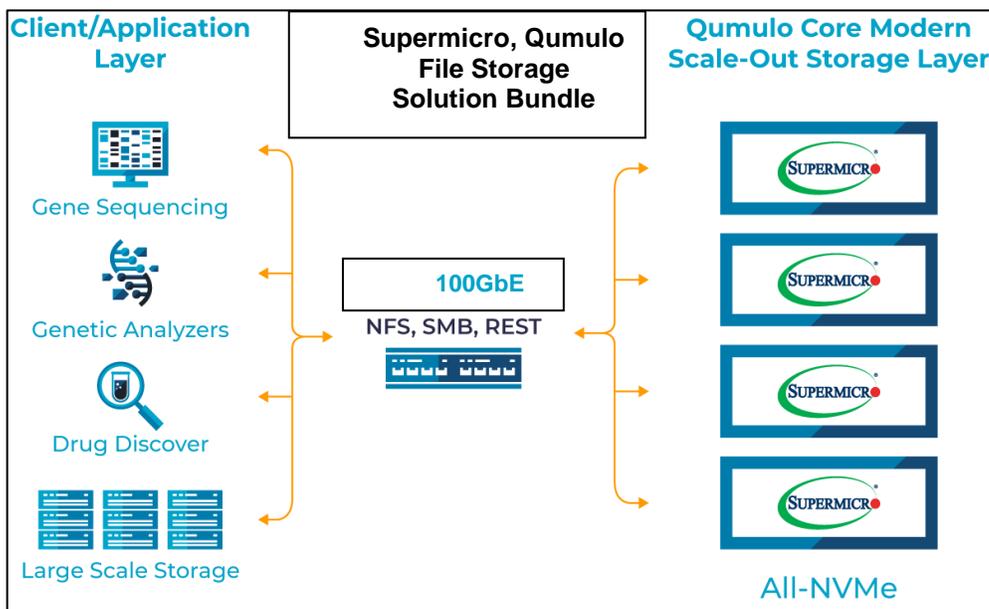

Figure 1 - Life Science Architecture

Obtain Real-Time Answers About Data and Storage

Qumulo stores tens of billions of files with scalable throughput and is the only product that provides real-time visibility and control for file systems at the petabyte scale. Storage administrators and life sciences researchers can instantly see usage, activity, and throughput at any level of the unified directory structure, no matter how many files are in the file system.

Qumulo's modern scale-out storage allows Life Sciences storage administrators to scale storage infrastructure on-demand. Qumulo enables massive scaling by adding another All-NVMe node; the rebalancing happens automatically. Qumulo also enables customers to deploy Qumulo Core anywhere – on-premises, on third-party hardware, or in the public cloud.

Maximize Price/Performance and Price/Capacity With Software Designed for All-NVMe

Qumulo Core's advanced software extends the advantages that adminstrators can achieve with Supermicro's All-NVMe platform. Qumulo Core was initially designed with All-NVMe in mind and is continually tuned to improve the performance that organizations can obtain from the Supermicro platform.

Fine Tuned for the Widest Range of Workloads and Files Sizes

Qumulo Core provides unmatched support for the broadest range of Life Sciences workflows. Whether dealing with transactional or sequential access patterns and small or large file sizes, Qumulo Core supports them within a single file system. In addition, Qumulo Core delivers industry-leading scalability— from 4 to over 100 nodes in a single cluster and 100 terabytes to over 360 petabytes in a single file system.

Conclusion & Resources

Supermicro and Qumulo Software-Defined Storage solution bundle is designed for commercial HPC workflows in the Life Sciences industry. Check out our solution page, https://www.supermicro.com/en/solutions/qumulo for more details. Contact us to discuss your organization's specific requirements.

Supermicro All-NVMe	
Server model	AS -1114S-WN10RT
Form Factor	1U server
Configurations	30TB, 76TB, 153TB per node
CPU	AMD EPYC 24 core 2.8 Ghz
Network Port	4 x 100GbE
MGMT Port	Base-T (RJ45)
Memory	128GB

ABOUT QUMULO

Qumulo is the breakthrough leader in simplifying data management in its native file form at a massive scale across hybrid-cloud environments. Its high-performance file data platform is designed to store, manage and create workflows and applications with data in its native file form at massive scale on prem and in the public cloud. Qumulo is trusted by Fortune 500 companies, major film and animation studios, and some of the largest research facilities in the world to easily manage the full data lifecycle from ingestion, transformation, publishing and archiving with cost-effective capacity, dynamic scalability, automatic encryption, real-time visibility and an advanced API that enables customers to easily integrate Qumulo into their ecosystem and workflows. www.qumulo.com