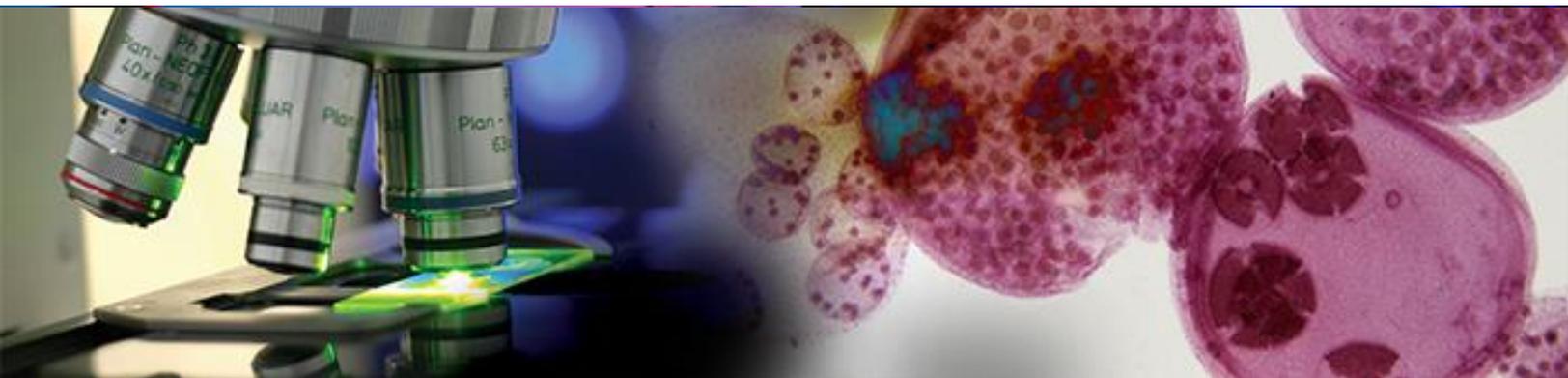# a³cube

KIRA Use Cases

*The Converged Elastic, High-Performance **Analytics Platform** that changes the way to extract value from your data*

Life Sciences

MOLECULAR DYNAMICS

Molecular dynamics, once one of the world's bigger challenges, is now seeing broader adoption and application within the life sciences community. As organizations try to run these codes to solve new problems, like pharmaceutical companies tracking rapid processes, they typically find that the molecular dynamics software they're using doesn't run well on commodity clusters.

KIRA is capable of handling large simulations, scaling nearly linearly up to thousands of nodes.
KIRA delivers optimized simulation performance to better leverage the advanced performance capabilities in the KIRA series, such as optimized flattened butterfly interconnects and the ANIMA PFS™ applications I/O accelerator.

The KIRA system is a modular platform, allowing organizations to start with a very small cabinet and grow their footprint if and when their needs demand it. They can also mix and match technologies, adding GPUs into the mix should they deploy code that's optimized for it.

HEALTHCARE AND LIFE SCIENCES ANALYTICS

Like all large and technology-powered businesses, healthcare, pharma, agricultural sciences and biotech companies are challenged with finding ways to derive value from ever-increasing volumes of structured and unstructured data from an ever-wider variety of sources. The confluence of factors such as proliferating compute environments, e-health, the rise of genomics and public- and private-sector healthcare initiatives all contribute to this challenge.
From a business perspective, healthcare and life sciences (HCLS) companies are shifting focus from just optimizing specific tasks to creating end-to-end analytics pipelines that can address specific business problems.
At the same time, companies are expected to keep up with the rapid pace of technological development in areas like rapid direct sequencing, variant detection and wearable medical technologies.
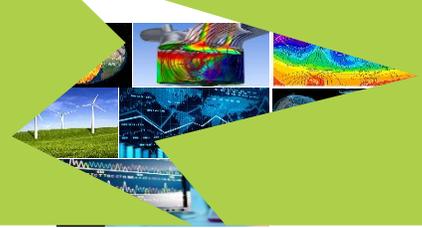
Key Capabilities for Life-Science

A3Cube brings scalable computing power, GPUs accelerations, extreme IO and storage, and analytics optimized capabilities in a single integrated appliance.

Run your entire analytics pipeline on a single, powerful yet flexible platform with standard tools.
Using standard Hadoop/Spark tools or any other Analitycs software available without modification

Support multiple big data workloads in near-real-time, from massive parallel jobs to complex pattern-finding analytics, while avoiding data movement, with rapid integration of data from multiple sources.

Reduce false positives and speed time to better decisions in areas like drug repurposing and precision medicine.

Ensure your analytics infrastructure is built on an open, scalable framework with standard software and an integrated design that can evolve as new technologies emerge and the regulatory environment changes.

Benefits for Life-Science

Shortened path to better decisions and patient outcomes: Massive speed benefits from the KIRA system make it possible to transform the volumes of available data into usable information for decision support, resulting in better, faster insights to improve clinical trials and speed drug discovery.

Improved responsiveness and agility: With the KIRA system, life sciences and healthcare professionals, analysts and scientists can take full advantage of their data in near-real-time, quickly adjusting based on data-driven insight. Less time waiting for computation means more iterations, more efficiency and the ability to try things you otherwise couldn't consider.

Increased power and flexibility: The KIRA platform is capable of accelerating all aspects of precision medicine workflows, from analysis of high-throughput NGS sequencing data and contextualization of variants to increasing disease understanding, doing machine learning over EHR data, and improving patient outcomes.

Reduced infrastructure TCO: A3Cube 's high-performance, scalable solutions help bring down the cost of analytics, from power and upgradability to reduction of data movement and increased efficiency, while helping manage the risk of provisioning information technology in the face of ever-changing scientific technologies.

The Solution: A Converged, High-Performance Versatile All-In-One Platform

The KIRA platform converges the most advanced supercomputing features with the most advanced big data capabilities in one powerful analytics solution. KIRA integrates ultra low latency interconnection, high density computing, latest accelerators (GPUs) and elastic parallel file system.