

# Assess Risks Faster With Greater Efficiency

## Dell Validated Design for HPC - Risk Assessment using Monte Carlo simulations

### 1.23X better space efficiency

Record-setting space efficiency with 1.23X more calculations per cubic inch of data center space<sup>1</sup>

### 2.25X faster

Record-setting cold time calculations for baseline problem sizes<sup>2</sup>

### 1.15X faster

Record-setting cold time calculations for large-scale problem sizes<sup>3</sup>

Banks need the ability to analyze large data sets from multiple sources to make fast, accurate calculations that help them match credit offers to risk levels.

The Validated Design for HPC - Risk Assessment runs data-intensive Monte Carlo simulations on powerful high performance computing (HPC) systems that include NVIDIA GPU-accelerated Dell PowerEdge servers paired with high-performance storage, optimized to accelerate Monte Carlo simulation results.

### Evaluate and test millions of scenarios

To thrive in a highly competitive global marketplace, you need to capitalize on technologies designed to improve investment returns and attract and retain more customers. An important part of that equation involves using sophisticated simulation algorithms to better manage risk. However, traditional infrastructure falters under the sheer volume of data used to make these calculations.

HPC allows you to leverage massive volumes of data, faster, to better understand the sources of risk and return, giving you the ability to react in real time to insights revealed by analyzing both historical and real-time data. Powerful Validated Designs for HPC that are optimized for Monte Carlo simulations are capable of performing risk assessments across millions of scenarios.

As an industry leader in advanced computing, Dell Technologies offers proven products, solutions and expertise that reduce complexity and help you capitalize on the promise of using technology to increase profits and reduce losses by better managing risks. Working closely with our partner ecosystem and industry providers we deliver engineering-validated solutions that have been optimized, tuned and tested for Monte Carlo simulations.

The Validated Design for HPC - Risk Assessment helps you expand your AI capabilities with scalable, flexible solutions designed to improve the customer experience and build consumer trust with faster response times, early fraud detection, and individualized offers.

HPC for Risk Assessment provides multiple game-changing benefits:

- **Leverage expertise to fast-track projects and success:** Solutions purpose-built for financial services help you improve customer engagement and retention, individualize offers and services, and detect fraud in real-time.
- **Speed time to results with confidence and savings:** Realize return on investment sooner with rapid deployment and modular building blocks providing faster time to results.
- **Maximize performance, efficiency and flexibility:** Make faster, more accurate risk assessments. Evaluate and test millions of hypothetical scenarios using both historical and real-time data.

<sup>1</sup> STAC-A2.β2.HPORTFOLIO.SPACE\_EFF. Source: [STAC Report](#), CUDA 11.6 with 4x NVIDIA A100 SXM4 40GB GPUs in a Dell PowerEdge XE8545 Server with Red Hat Enterprise Linux 8.3, October 2022.

<sup>2</sup> STAC-A2.β2.GREEKS.TIME.COLD. Source: [STAC Report](#), CUDA 11.6 with 4x NVIDIA A100 SXM4 40GB GPUs in a PowerEdge XE8545 Server with Red Hat Enterprise Linux 8.3, October 2022.

<sup>3</sup> STAC-A2.β2.GREEKS.10-100k-1260TIME.COLD. Source: [STAC Report](#), CUDA 11.6 with 4x NVIDIA A100 SXM4 40GB GPUs in a PowerEdge XE8545 Server with Red Hat Enterprise Linux 8.3, October 2022.

## Validated Designs for HPC Solution Brief

Dell Technologies experts are available to help you design a solution for your specific needs. And [Dell Technologies Services](#) — ranging from consulting and education to deployment and support — are available when and where you need them.

[Dell APEX for HPC](#) delivers Innovation-as-a-Service to help you accelerate time to discovery and innovation, with HPC use cases including Monte Carlo simulations for risk analysis.

The [Dell HPC & AI Innovation Lab](#) can help you shorten design and configuration times. Our experts will work with you to benchmark your configuration and create a solution with the right features, at the right price.

### Learn more

[HPC InfoHub](#)

[dell.com/hpc](https://dell.com/hpc)

### Technical specifications

The Validated Design for HPC - Risk Assessment using Monte Carlo simulations is built on a powerful combination of Dell PowerEdge servers; scalable, available storage; and fast networking with industry-leading software to help you make more accurate risk assessments faster. Dell Technologies engineers can work with you to tailor a configuration that meets your needs.

Dell PowerEdge Servers	Dell Storage	Networking	Software
R750xa, R7525 and XE8545 with NVIDIA® A100 GPUs	PowerScale All-Flash F900 Or Validated Design for HPC BeeGFS® Storage	NVIDIA Networking	<ul style="list-style-type: none"><li>• Red Hat® Enterprise Linux®</li><li>• NVIDIA Bright Cluster Manager®</li></ul>

### About STAC-A2 Benchmark testing

STAC® provides technology research and testing tools based on community-source standards. The STAC-A2 Benchmark suite is the industry standard for testing technology stacks used for compute-intensive analytics workloads involved in pricing and risk management. It is such a well-known and well-understood benchmark in financial services that many now use it as a proxy for judging how well a technology stack would do with other financial HPC workloads.

The Dell Validated Design for HPC - Risk Assessment set [records](#) for space efficiency and cold time calculations in financial services industry STAC-A2 benchmark testing. Cold time calculations are especially important to firms with compute grids and clusters where the compute gets used for many different tasks. They want systems that allow them to set up a new task and compute quickly. The value of the efficiency benchmark is the space and power savings - for example, using 4 GPUs instead of 8 GPUs.

