



Advancing healthcare with modern HPC and AI

How leading HPC performance, security, and management help solve bigger healthcare challenges faster

HEALTHCARE HAS BECOME A DATA-DRIVEN INDUSTRY

As the volume of data grows, healthcare organizations have the opportunity to provide personalized care at lower costs by adopting new systems capable of processing large, disparate sources of information. To be effective, these systems must be able to turn this data into timely insights in near real time to speed discoveries and improve care.

Whether using machine learning or AI to analyze medical images, detect patterns across populations, design medical devices, or solve problems such as how to predict protein structures, you need to be able to run compute-intensive workloads at high speed. You also need the scalable capacity and framework to securely process massive datasets, which might be distributed across many systems or locations. Electronic health record (EHR) systems, for example, are a potential source of real-time insight but may store millions of confidential patient records across a decentralized infrastructure.

High-performance computing (HPC) is providing healthcare organizations with the performance and efficiencies needed to turn data into actionable intelligence. With the right HPC implementation, you could also achieve simplified infrastructure management, multilayered security, and lower total cost of ownership (TCO).

TRANSFORM HEALTH OUTCOMES WITH INDUSTRY-LEADING HPC

As an industry leader in AI and HPC for over a decade, Dell Technologies offers proven solutions and expertise that reduce complexity and help you capitalize on the promise of real-time health insights. Dell PowerEdge servers powered by AMD EPYC™ processors deliver the HPC performance and productivity you need with the integrated security features that help protect more than just data, all with the world-class management, reliability, support, and interoperability of our standardized portfolio.



TOP 5 BENEFITS OF DELL TECHNOLOGIES AND AMD FOR HPC AND AI

1

ACCELERATE A WIDE RANGE OF HEALTHCARE WORKLOADS

With faster processing you can run more workloads simultaneously and reach insights sooner. Patients who receive scan results faster can spend less time in hospital and be treated more efficiently, helping to improve the overall standard of care.

2

HELP SAFEGUARD SENSITIVE MEDICAL DATA

Address security threats in modern healthcare IT environments with a holistic security approach leveraging a cryptographic root of trust and integrated silicon-based security features.

3

IMPROVE INSIGHTS AND PRODUCTIVITY

Dell PowerEdge servers and AMD EPYC™ processors deliver industry-leading HPC performance per socket and a future-ready upgrade path to enable you to process more data at a time, leading to accelerated time to insights in research and more accurate, detailed AI modeling.

4

SIMPLIFY IT MANAGEMENT

Our standardized portfolio, validated approach and industry-leading solutions help to reduce the risk, cost, and complexity of implementation. A centralized and automated IT console also helps simplify IT management, even if your infrastructure is distributed across multiple sites and edge locations.

5

OPTIMIZE TCO AND SUSTAINABILITY

With the right-sized solution, Dell standardized platforms can coexist and be managed across CPU generations. Achieve server performance that can reduce per-core licensing costs to help enable a faster route to value and a smaller datacenter footprint.

FIND THE RIGHT COMPUTE AND SERVER CONFIGURATION FOR YOUR HPC WORKLOADS

ENTRY-LEVEL HPC such as pilot studies or single-site EHR systems	DENSITY-FOCUSED HPC such as distributed EHR systems	ACCELERATOR-FOCUSED HPC such as genomics and AI/ML-aided research
 One 2nd- or 3rd-gen AMD EPYC™ processor with up to 64 cores  PowerEdge R6515 and R7515 Advanced technology that balances capability and capacity with enterprise features	 Up to two 2nd- or 3rd-gen AMD EPYC™ processors with up to 64 cores per processor  PowerEdge C6525 Compute-dense servers designed to boost datacenter performance and provide extreme compute at scale	 Two 3rd-gen AMD EPYC™ processors with up to 64 cores per processor  PowerEdge XE8545 GPU-optimized design focused on specialized compute needs

OPTIMIZE HEALTHCARE WORKLOADS WITH DELL TECHNOLOGIES HPC SOLUTIONS

The needs of the modern healthcare organization are central to the design of Dell PowerEdge HPC solutions powered by AMD EPYC™ processors. They're configured to accelerate the most demanding workloads with a broad portfolio that spans density-optimized, accelerator-optimized, and entry-level single- and dual-socket systems. Liquid cooling is available for very high-density environments. Together, Dell Technologies and AMD offer:

- ♦ **Industry-leading innovation:** Both Dell Technologies and AMD are committed to delivering HPC solutions that are built to improve performance and efficiency and to lower TCO. PowerEdge servers feature innovation across the portfolio including a thoughtful cooling design, a focus on acceleration and a scalable architecture. With AMD Infinity Architecture, AMD EPYC™ processors deliver a powerful feature set across the entire CPU stack. You choose the core count and frequency, while memory capabilities, advanced security features, and I/O capacity are all included at no additional cost.
- ♦ **Security by design:** Security features designed to protect your organization are built in, and they go far beyond just the network, OS, data and applications. PowerEdge servers include silicon-based security capabilities for an integrated approach. A cryptographic root of trust authenticates the HPC server's BIOS and firmware at boot while AMD Infinity Guard features help secure the boot process, encrypt the entire main memory with secure memory encryption (SME), and secure virtualized environments and containers with secure encrypted virtualization (SEV). New AMD Shadow Stack and Secure Nested Paging (SEV-SNP) features further enhance security capabilities.¹

- ♦ **Management simplicity:** Dell Technologies HPC solutions simplify infrastructure management with two advantages. Firstly, our standardized portfolio means everything works together. It's easy to connect and deploy new hardware, scale infrastructure, and swap components in and out without worrying about compatibility. Secondly, management of your entire HPC infrastructure is centralized and automated, even when it's distributed across multiple sites and edge locations. The integrated Dell Remote Access Controller (iDRAC) hardware that sits inside every Dell server allows you to deploy, update, monitor, maintain, and manage PowerEdge servers remotely; servers don't even need to be powered on. Everything is controlled in OpenManage, the all-in-one console you can use on desktop and mobile devices.
- ♦ **Faster time to insights:** Choosing PowerEdge with AMD EPYC™ can help deliver faster results for better healthcare outcomes. AMD EPYC™ is the highest performing server processor for enterprise computing.²

DELL TECHNOLOGIES AND AMD: WORKING TOGETHER TO ADVANCE HEALTHCARE

Dell Technologies and AMD are working together to address your biggest HPC challenges. Our portfolio of HPC solutions deliver the type of real-time performance and reliability needed for clinical and biomedical research workflows, along with the robust security, excellent scalability, and easy manageability needed to support IT. Together, we provide the right solution to power your innovation engine as you aim to improve patient care, reduce costs and speed time to discovery.

Learn More about our solutions for HPC.

Contact a Dell Technologies Solutions Expert.

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1.) AMD Infinity Guard features vary by AMD EPYC™ processor generations. Infinity Guard features must be enabled by server OEMs and/or cloud service providers to operate. Check with your OEM or provider to confirm support of these features. Learn more about Infinity Guard at <https://www.amd.com/en/technologies/infinity-guard>. 2.) MLN-016A: Results as of 04/14/2021 using SPECrate®2017_int_base. The AMD EPYC™ 7763 scored 839, <http://www.spec.org/cpu2017/results/res2021q1/cpu2017-20210219-24936.html> which is higher than all other 2P scores published on the SPEC® website. See www.spec.org for more information.