

HPE Cray Supercomputing EX solution for the year 2025

Accelerate insight and discovery



Today, more than half of the aggregate computing power of the world's Top 100 supercomputers¹ is delivered by the HPE Cray Supercomputing EX solution. It just got even faster and even more efficient with new software, new compute, new interconnect, and new storage!

Advancing the way people live and work

The HPE Cray SC EX solution is the computational backbone of national research, national weather forecasting, homeland security, and sovereign AI in many nations around the world. Many of the brightest minds of humankind—the scientists and researchers who are using the HPE Cray SC EX solution—are tackling the grand challenges of humankind. The newly announced capabilities on every architectural layer enable them to achieve their noble mission even faster, which is fully aligned with the enduring purpose of Hewlett Packard Enterprise—to advance the way people live and work.

What is new?

HPE has announced new capabilities for the world's leading supercomputing solution HPE Cray SC EX that is based on [100% fanless liquid cooling systems architecture from HPE](#) on every architectural layer (software, compute, interconnect, and storage), specifically:

- **HPE Cray SC User Services Software** that improves the user experience with features that help customers optimize system efficiency, regulate power consumption, and flexibly run diverse HPC and AI workloads on supercomputing infrastructure.

- **HPE Cray SC EX4252 Gen2 Compute Blade** featuring eight 5th Gen AMD EPYC™ 9005 processors with up to 192 cores per processor. Providing up to 98,304 cores in a single cabinet.
- **HPE Cray SC EX154n Accelerator Blade** featuring one NVIDIA® GB200 Grace Blackwell NVL4 Superchip. Providing up to 224 NVIDIA Blackwell GPUs in a single cabinet.
- **HPE Slingshot interconnect 400** that doubles the performance over the previous generation that powers the world's exascale supercomputers with automated congestion management and adaptive routing.
- **HPE Cray SC Storage Systems E2000** with embedded open-source Lustre file system that more than doubles I/O performance compared to the previous generation—improving the utilization of the compute nodes by reducing idle time waiting for I/O to complete.

¹ top500.org/lists/top500/2024/06/

What has made the HPE Cray SC EX solution the world's leading supercomputer?

The unique value proposition of the HPE Cray SC EX solution

The value proposition of the HPE Cray SC EX solution is centered around delivering unparalleled performance, efficiency, flexibility, and innovation to meet the most demanding computational challenges of our time cost-effectively. Here are the top 10 aspects of the value proposition:

1. Unmatched performance

- **Extreme scalability:** Capable of scaling from one rack to the world's most powerful supercomputer,² addressing a wide range of computational needs
- **High throughput:** Optimized for high throughput computing, enabling faster processing times for scientific simulations, artificial intelligence, and high performance data analytics

2. Innovative architecture

- **Advanced technologies:** Incorporates the latest processors, accelerators, memory, interconnect, and storage technologies to provide cutting-edge performance
- **Efficient design:** Features energy-efficient 100% fanless direct liquid cooling and power management systems, reducing operational costs and environmental impact

3. Versatility and customization

- **Modular and flexible:** Offers modular designs with multivendor processors that can be tailored to specific workloads and applications, helping ensure optimal performance for diverse requirements
- **Future-proofing:** Easily upgradable to incorporate new technologies, protecting investments over the long term

4. Data-driven capabilities

- **High bandwidth and low latency:** Utilizes a high-speed interconnect with automated congestion management and fine-grained adaptive routing for low tail latency
- **Integrated storage solutions:** Provides advanced storage options to efficiently and cost-effectively handle large volumes of data while increasing compute node utilization

5. Comprehensive software ecosystem

- **Optimized software stack:** Includes a robust suite of high performance computing (HPC) software, tools, and libraries designed to increase system performance and user productivity
- **Broad compatibility:** Supports a wide range of operating systems, applications, and development environments

6. Reliability and availability

- **Robust infrastructure:** Built with high reliability and availability features to help ensure consistent performance and reduce downtime
- **Proactive monitoring:** Advanced monitoring and diagnostic tools help maintain system health and quickly resolve issues

7. Ease of management

- **Unified management interface:** Simplifies management of large-scale supercomputing environments through a single, intuitive interface
- **Automation and orchestration:** Incorporates automated tools to streamline administrative tasks and improve efficiency

8. Expert support and services

- **Global support network:** Provides round-the-clock assistance and maintenance services backed by our extensive global support infrastructure
- **Consulting and optimization:** Offers turnkey implementation and professional services to help customers maximize their investments and achieve optimal performance

² top500.org/lists/top500/2024/06/

9. Energy efficiency

- **Efficient use of energy:** Our 100% fanless direct liquid cooled systems architecture gets more computational work done per kilowatt than air cooled or partially direct liquid cooled systems
- **Capture and reuse of waste heat:** Customers do use captured waste heat from our supercomputers to heat buildings, greenhouses, or fish farms reducing CO2 emissions

10. Cost efficiency

- **Competitive TCO:** Optimized for a competitive total cost of ownership through efficient resource utilization and operational savings
- **Flexible financing options:** Offers various purchasing and financing options to fit different budgetary constraints

By leveraging these aspects, HPE Cray SC EX solutions provide customers with the tools they need to accelerate innovation, drive research and development, and maintain a competitive edge in their respective fields.

³ HPE internal analysis of TOP500.org list publicly available at top500.org/lists/top500/2024/06/

⁴ top500.org/lists/top500/2024/06/

Is it for me?2

HPE has developed the HPE Cray SC EX solution for organizations that use 100% fanless liquid cooled supercomputing to run workflows based on a combination of the three key supercomputing workloads (modeling and simulation, artificial intelligence, high performance data analytics) in the fastest and most cost-effective way.³

Key targeted market segments are:

- National research laboratories
- National sovereign AI centers
- National defense and intelligence agencies
- National weather forecasting centers
- Supercomputing departments in energy, automotive, and aerospace companies

Accelerate your innovation and discovery with HPE Cray SC EX

If you're looking for a next-generation supercomputing solution with the same exascale technologies that are powering the world's exascale machines, look no further than HPE Cray SC EX. The supercomputing solution that is providing more than half of the aggregate computing power of the world's Top 100 supercomputers⁴ just got even faster and even more efficient. Contact your HPE account manager today to set up a deep briefing on what HPE can do for you, so you can accelerate your innovation and discovery to achieve your mission or your business objectives even faster!

Learn more at

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