US Department of Energy and Intel to Deliver Exascale Technology

Targeted for 2022 Delivery, The Argonne National Laboratory Supercomputer will Enable High-Performance Computing and Artificial Intelligence at Exascale

U.S. Department of Energy and Intel to Deliver First Exa...

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Editor's note: *Edits to this news release were made in August and September of 2021 to reflect the most current information at the time. Notes announcing the edits were inadvertently omitted when the updates were made.*

CHICAGO, March 18, 2019 – Intel Corporation and the U.S. Department of Energy (DOE) will deliver a supercomputer with a performance of one exaFLOP in the United States. The system being developed at DOE's Argonne National Laboratory* in Chicago, named "Aurora," will be used to dramatically advance scientific research and discovery. The contract is valued at more than $500 million and will be delivered to Argonne National Laboratory by Intel and sub-contractor Cray Inc.* in 2022.

The Aurora system's exaFLOP of performance – equal to a "quintillion" floating point computations per second – combined with an ability to handle both traditional high-performance computing (HPC) and artificial intelligence (AI) will give researchers an unprecedented set of tools to address scientific problems at exascale. These breakthrough research projects range from developing extreme-scale cosmological simulations, discovering new approaches for drug response prediction and discovering materials for the creation of more efficient organic solar cells. The Aurora system will foster new scientific innovation and usher in new technological capabilities, furthering the United States' scientific leadership position globally.

More: The Exascale Opportunity (Blog) | Accelerating the Convergence of HPC and AI at Exascale (Intel.com)

"Achieving exascale is imperative, not only to better the scientific community, but also to better the lives of everyday Americans," said U.S. Secretary of Energy Rick Perry. "Aurora and the next generation of exascale supercomputers will apply HPC and AI technologies to areas such as cancer research, climate modeling and veterans' health treatments. The innovative advancements that will be made with exascale will have an incredibly significant impact on our society."

U.S. Secretary of Energy Rick Perry (left) and Intel CEO Bob Swan are shown Monday, March 18, 2019, in Chicago at an announcement regarding the "Aurora" supercomputer. (Credit: Argonne National Laboratory)

"The convergence of AI and high-performance computing is an enormous opportunity to address some of the world's biggest challenges and an important catalyst for economic opportunity," said Bob Swan, Intel CEO.

"There is tremendous scientific benefit to our nation that comes from collaborations like this one with the Department of Energy, Argonne National Laboratory, and industry partners Intel and Cray," said Argonne National Laboratory Director Paul Kearns. "Argonne's Aurora system is built for next-generation artificial intelligence and will accelerate scientific discovery by combining high-performance computing and artificial intelligence to address real world problems, such as improving extreme weather forecasting, accelerating medical treatments, mapping the human brain, developing new materials and further understanding the universe – and that is just the beginning."

The foundation of the Aurora supercomputer will be new Intel technologies designed specifically for the convergence of artificial intelligence and high-performance computing at extreme computing scale. These include a future generation of the Intel® Xeon® Scalable processor, Intel's X^e compute architecture, a future generation of Intel® Optane™ DC Persistent Memory, and Intel's One API software. Aurora will use Cray's next-generation supercomputer system, code-named "Shasta," which will comprise more than 200 cabinets and include Cray's Slingshot™ high-performance scalable interconnect and the Shasta software stack optimized for Intel architecture.

"Cray is proud to be partnering with Intel and Argonne to accelerate the pace of discovery and innovation across a broad range of disciplines," said Peter Ungaro, president and CEO of Cray. "We are excited that Shasta will be the foundation for the upcoming exascale-era characterized by extreme performance capability, new data-centric workloads and heterogeneous computing."

For information about the work at DOE's Argonne National Laboratory visit its website.

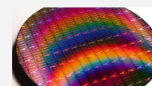**More Customer Stories:** Intel Customer Spotlight on Intel.com | Customer Stories on Intel Newsroom

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About Argonne National Laboratory

Argonne National Laboratory seeks solutions to pressing national problems in science and technology. The nation's first national laboratory, Argonne conducts leading-edge basic and applied scientific research in virtually every scientific discipline. Argonne researchers work closely with researchers from hundreds of companies, universities, and federal, state and municipal agencies to help them solve their specific problems, advance America's scientific leadership and prepare the nation for a better future. With employees from more than 60 nations, Argonne is managed by UChicago Argonne, LLC for the U.S. Department of Energy's Office of Science.

About Cray Inc.

Cray Inc. (Nasdaq:CRAY) combines computation and creativity so visionaries can keep asking questions that challenge the limits of possibility. Drawing on more than 45 years of experience, Cray develops the world's most advanced supercomputers, pushing the boundaries of performance, efficiency and scalability. Cray continues to innovate today at the convergence of data and discovery, offering a comprehensive portfolio of supercomputers, high-performance storage, data analytics and artificial intelligence solutions. Go to www.cray.com for more information.

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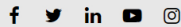SD Supercomputer Center Selects Habana, Intel for Efficient AI

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