

# Case Study: PIER Group Helps NCSA Launch Delta Supercomputer

- Client:** National Center for Supercomputing Applications
- Partner:** PIER Group
- Challenge:** Implementing GPU-intensive architecture to support advanced scientific research
- Solution:** Delta, a computing and data resource that balances cutting-edge graphics processor and CPU architectures that will shape the future of advanced research computing
- Results:** 57 active projects, 116 active Delta users, more than 421,000 jobs run in Delta during three-month early user period

## Introduction

When the National Center for Supercomputing Applications (or NCSA) retired its long-running Blue Waters supercomputer housed at the University of Illinois Urbana-Champaign, it was decided that the new supercomputing iteration should be able to utilize both traditional CPU-based computing workloads as well as newer graphics processing unit (or GPU)-based jobs that typically require larger allocations of in-system memory.

To determine which external partner would help with the new supercomputer's development and implementation, the NCSA held a general bidding round, and the bid submitted by PIER Group was chosen as the winner.

## Implementation Process

PIER Group, which has maintained a multiyear relationship with the NCSA, worked in lockstep with the NCSA's engineers and technicians to architect the basic systems and code that would eventually become the Delta supercomputer.

Funding was provided by the National Science Foundation's (or NSF) High-Performance Computing program. After a months-long early user period and an external panel review for operations conducted by the NSF, Delta was approved to enter full production. Additional industry partners such as Hewlett Packard Enterprise also contributed to Delta's development and deployment.

## Results

Delta was built as a general-purpose GPU-heavy compute cluster capable of performing advanced research computing jobs for both the University of Illinois Urbana-Champaign campus as well as the NSF's larger national cyberinfrastructure community.

As of this writing, Delta has already been utilized to run 57 active projects, accrued an active user base of 116 users, and ran over 421,000 compute jobs over the course of its three-month early user period. PIER Group and the NCSA anticipate those numbers will continue to grow once Delta enters full operation.



*"Delta is a tremendous resource for AI and Machine Learning, as well as simulation. Combined with its high-performance file system and features for broader accessibility to communities that have not historically used HPC systems, Delta will help accelerate the adoption and use of these techniques into all areas of research. NCSA thanks the panel for their time, comments and recommendations, which will help us make Delta even more useful to the research community."*

-Bill Gropp, NCSA Director

**To learn more about the computing solutions and services PIER Group offers, be sure to contact them or visit their website using the contact information provided.**

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PIER Group, a Hewlett Packard Enterprise Gold Solution Provider, formed in early 2018, as the result of a group's passion for the Research and Education industry. With an average of 25 years' experience serving the R&E community, the PIER Group team is passionate about research and education, working hard every day to continue delivering the best possible technology for the best possible value to customers across the country.

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## **Additional Resources and Information**

['Delta Now Fully Operational' NCSA Press Statement](#)  
[Delta NCSA Project Profile](#)



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