



## Case Study

### Ace Computers

Intel® Xeon® Processor-  
Based Servers



# Ace Computers helps a U.S. Department of Energy lab save power costs and break energy efficiency records.

## Meet Ace Computers

Ace Computers, an Intel® Premier Partner, is a customer-centric systems integrator providing custom, high-performance computing, server, storage, and digital media solutions. It leverages long-standing close vendor relationships and a streamlined, just-in-time business model to offer the best possible price-performance to commercial enterprises, higher education institutions, advanced digital media environments, and federal agencies like the U.S. Department of Energy.

“Ace worked closely with Intel to qualify this short-depth server and found it was not only more energy efficient, but also faster than competing platforms.”

– John Samborski  
Vice President,  
Ace Computers



## Solution Overview

This solution involved one of the first large implementations of Intel® Core™ technology in a high-performance computing (HPC) cluster. In fact, the U.S. Department of Energy’s Fermilab National Accelerator Laboratory (Fermilab) needed a HPC server cluster of approximately 600 nodes of dual-processor, dual-core systems. Ace Computers met this challenge while also fulfilling strict performance, budgetary, uptime, and power consumption requirements. By working closely with Intel, Ace Computers developed a solution with the dual Intel® Xeon® processor 5148 and the Intel® SR1530CL server platform.

## A Conversation with Ace Computers, an Intel Premier Partner

### What were the primary business or technology challenges facing your customer?

Fermilab’s mission defines the goal of high-energy physics research: unlocking nature’s deepest secrets, and learning how the universe is made and how it works. Scientists at Fermilab carry out research in high-energy physics to answer these questions and use technology to do so.

Fermilab’s primary challenge was acquiring the best overall research tool to properly run their code and fit into their power envelope. As a facility of the U.S. Department of Energy, utilizing the lowest possible power consumption in operating the server cluster was also a major consideration.

### Describe the solution you developed to address these challenges.

Using the Intel® SR1530CL server platform with two Intel® Xeon® processor 5148 series per node, the Ace Computers system operated faster on Fermilab benchmarks at less than 50 percent of the power consumption of the competitive platform. With this significant reduction in operational power use and subsequent cost, Fermilab was able to expand their order to 1,030 systems, thus receiving a better research tool.

### What technologies did you use?

- Intel® Core™ microarchitecture (65nm process technology)
- Intel® Xeon® 5100 series (dual-core)
- Intel® SR5130 server platform
- Low wattage Intel Xeon processors (40 watt per processor)

### Describe any implementation challenges.

A rigorous implementation plan was specified by Fermilab. First, during a strict burn-in procedure, the first rack was torture-tested to uncover any weaknesses in the platform; the testing was performed over a two-week acceptance period at over 97% uptime. This was followed by an aggressive implementation period, when all the remaining systems were integrated and installed. Finally, all systems were tested over a 30-day period, and had to pass with over 98% uptime.

### How did you overcome these implementation challenges?

Working with the engineering staff from Intel, we solved rotational vibration problems encountered during testing, while following the stated timeline.

### What are the benefits of the solution you provided for your customer?

For the past 18 months, Fermilab has enjoyed a much faster research tool than expected with a reported 99.985% uptime. Also, the power cost savings of \$1.5 million (over five years) allowed Fermilab to purchase 430 more nodes than originally budgeted.

### Describe how the solution you provided supports productivity and provides other measurable gains.

The Ace Computers solution provides a higher degree of uptime than the platforms and nodes delivered by competitors and has delivered significant savings on electricity for the lab. What's more, the steps Intel and Ace Computers took to solve issues that occurred during testing have now been incorporated into Fermilab's RFPs for current and future HPC clusters.

To find out more about Ace Computers' technology solutions, visit [www.acecomputers.com](http://www.acecomputers.com) or call 877-Ace-Comp.



## Featured Technology: Intel® Xeon® Processor-Based Servers

With Intel® Xeon® processor-based servers, which incorporate Intel® Core™ microarchitecture, you gain a stable, reliable, energy-efficient and long-term foundation for high-performance computing. Like all Intel servers, they also optimize return on investment while extending the leading performance and performance-per-watt advantages of Intel's proven multi-core technology.

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**Intel Xeon Processor 5100 Series:** Run your infrastructure foundation applications with the ultimate solution for cooling and density challenges—Intel Xeon processor 5100 series dual-core processors. These processors are optimized for energy-efficient, low-power, 64-bit computing, so they're ideal for intense computing environments, business-critical applications, and high-end workstations.

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**Intel SR1530 Server Platform:** This enterprise-level, rack-optimized value system is a perfect solution when processing power, reliable memory infrastructure, and redundant networking are required. The system is also integrated, so it's a great choice for Web farms, cluster, and appliance designs that can take advantage of the shorter chassis.

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**For more information about Intel Xeon processor-based servers, visit [www.intel.com](http://www.intel.com).**

