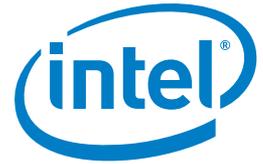


## SUCCESS BRIEF

### Intel® Xeon® Processor E5-2600 Product Family

Education

High-Performance Computing



# Faster Science, Greener System

Intel® Xeon® processor E5 family gives Louisiana State University 14 times more performance in a greener cluster



“One of the greatest things about the cluster is that while it’s about 14 times faster and many-fold more capable than the previous cluster, it actually takes up the same space. It’s faster, greener, and more powerful. It will be an incredibly important recruitment tool.”

– Honggao Liu,  
Deputy Director of the Center for  
Computation and Technology,  
and former Director of HPC,  
Louisiana State University

## ORGANIZATION

Louisiana State University (LSU) is the state’s flagship university, chartered to educate students, support leading-edge research, and promote economic growth. The High-Performance Computing at LSU (HPC@LSU) program provides advanced technologies and expertise that foster education, research, and discovery across all disciplines at the 30,000-student institution.

## CHALLENGE

HPC@LSU needed more capacity and performance to support increasingly sophisticated algorithms, larger data sets, and greater user demand. HPC@LSU wanted energy-efficient technologies that would help reduce the data center’s carbon footprint and save on total cost of ownership.

## SOLUTION

HPC@LSU is deploying a next-generation cluster of 440 Dell PowerEdge\* C6220 servers, each powered by two 8-core Intel® Xeon® processors E5-2600 product family running at 2.6 GHz for a total of 7,040 computational cores. The nodes are interconnected by a 40 Gbps Mellanox InfiniBand\* network. While most nodes (382) have 32 GB of memory, eight are equipped with 256 GB each and joined via ScaleMP\* software to yield a single symmetric multiprocessing (SMP) machine with 128 processing cores and 2 TB of memory. Fifty nodes are each equipped with 64 GB of memory and two NVIDIA Tesla\* M2090 graphics processing units (GPUs). The cluster provides peak performance of 212 TF and runs Red Hat Enterprise Linux\* (RHEL\*) 6. Designed to meet the demanding density, scale, and throughput requirements of cloud and HPC data centers, the energy-efficient cluster gives LSU 14 times more performance than its previous cluster, Tezpur.

## BENEFITS

“This cluster gives us the power to do more,” says Joel Tohline, director of LSU’s Center for Computation and Technology and a professor of physics and astronomy. “We’ll see more exciting science and engineering research. We’ll see students of all ages being excited about high-performance computing. We also expect to boost the state’s economic activities by sharing approximately 10 percent of our computing cycles with Louisiana’s growing film and visual-effects industries.”

Dr. Tohline says capabilities such as Intel® Advanced Vector Extension (Intel® AVX) and Intel® Turbo Boost Technology<sup>1</sup> 2.0 will provide significant additional speed for critical workloads over and above the base 14-fold improvement. He’s also looking forward to the Intel® Xeon Phi™ coprocessor, based on Intel® Many Integrated Cores (Intel® MIC) architecture.

Find the solution that’s right for your organization. Contact your Intel representative, visit [Intel’s Business Success Stories for IT Managers](#), or explore the [Intel.com IT Center](#).

<sup>1</sup> Requires a system with Intel® Turbo Boost Technology. Intel Turbo Boost Technology and Intel Turbo Boost Technology 2.0 are only available on select Intel® processors. Consult your PC manufacturer. Performance varies depending on hardware, software, and system configuration. For more information, visit <http://www.intel.com/go/turbo>

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