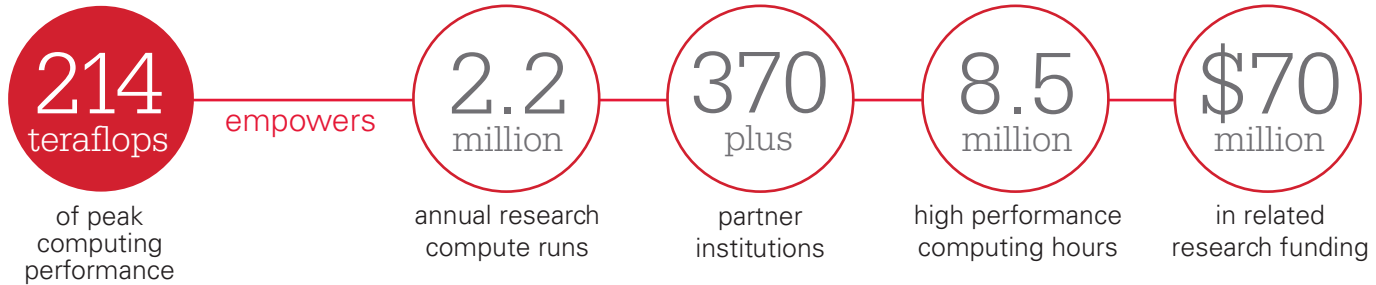


Ohio Supercomputer Center

An **OH·TECH** Consortium Member

Empower. Partner. Lead.



RESEARCH FOCUS AREAS:

MODELING & SIMULATION • ADVANCED MATERIALS • BIOSCIENCES • ENERGY & THE ENVIRONMENT

OSC propels innovation, discovery and economic competitiveness

The Ohio Supercomputer Center (OSC) strives to be a strategic force in propelling Ohio's economy and positioning the state as a competitive national forerunner in science and technology. Here's how:

We empower researchers.

Recognizing high-performance computing (HPC) resources as an indispensable springboard for innovative breakthroughs, OSC empowers academic and industry researchers to achieve pioneering scientific discoveries in biosciences, advanced materials, energy and a host of emerging disciplines.

We partner with industry.

In addition to harnessing collaborative research opportunities across the nation and developing joint research proposals, OSC facilitates industrial processes with modeling and simulation tools for virtual product development, bringing leading-edge resources and advanced expertise to large and small enterprises. The center actively partners with high-tech industries, attracting competitive businesses to the state of Ohio and boosting economic growth.

We lead Ohio's knowledge economy.

OSC directs strategic research activities of vital interest to the State of Ohio, the nation and the world community. Our in-house research staff specialize in supercomputing, computational science, data management and biomedical applications, to name a few.

Some Key OSC Initiatives:

Industrial Engagement with **INTELSIM**

OSC helps industrial partners large and small access high performance technologies.

- Our latest industrial engagement effort, IntelSim, provides modeling and simulation to small and medium size businesses.
- As leaders with the National Digital Engineering and Manufacturing Consortium (NDMEC), a public/private partnership, we provide manufacturers with access to modeling and simulation resources.
- Through the NDEMC program, OSC is helping 13 businesses find answers to specific manufacturing problems. Additionally, we actively support companies such as Intel, P&G, TotalSim, and Nimbis Services with their modeling and simulation needs.

Workforce Education

- The Ralph Regula School of Computational Science coordinates teaching computational science, which is the use of computer modeling and simulation to solve problems. We offer a baccalaureate minor, an associate degree concentration and a workforce certification.
- We promote the science, technology, engineering and mathematics (STEM) fields through our Summer Institute for high school students, as well as the Young Women's Summer Institute for middle-school girls.
- Our instructors train faculty and student researchers through scientific computing workshops, one-on-one classes, and web-based training.

www.osc.edu

For more information

Visit www.oar.net or contact:

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Ohio Technology Consortium
A Division of the Ohio Board of Regents

www.oh-tech.org

NDEMC projects: benefiting Ohio, Ohioans and beyond

Plastipak, a plastic bottle manufacturer

Where: Medina and Jackson Center, Ohio, in Medina and Shelby counties
OSC's contribution: Help the P&G supplier simulate a physical crush test of new bottle designs, which will enable them to effectively use less plastic in the final design.

Greenlight Optics, an optical systems product design company

Where: Loveland, Ohio, in the Greater Cincinnati area
OSC's contribution: Help this 3M spin-off, and potentially part of the Lockheed Martin supply chain, model thermal dissipation of the heatsink in a small 'pico-projector' product for smartphones.

Replex Plastics, a thermoformed plastics manufacturer

Where: Mount Vernon, Ohio, in Knox County
OSC's contribution: Assist with developing a computer model that simulates the path of the sun relative to mirror-augmented solar panels over the course of an entire year.

Applied Sciences, a carbon nanofiber manufacturer

Where: Cedarville, Ohio, in Greene County
OSC's contribution: Assist the Lockheed Martin supplier with extrusion modeling simulations to gain a better understanding of how the nanofibers are distributed when mixed with polymers.

Morrison Products, an HVAC fan manufacturer

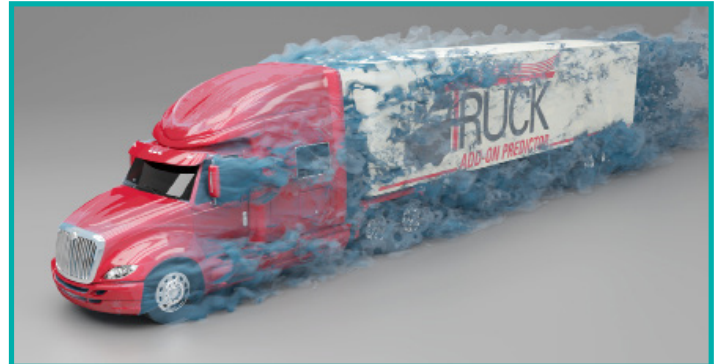
Where: Cleveland, Ohio
OSC's contribution: Collaborating with researchers from Morrison Products and NASA's Glenn Research Center, help solve a problem with high-frequency noises that occasionally come from the fans.

AltaSim Technologies, an engineering consulting firm

Where: Columbus, Ohio
OSC's contribution: Assist the engineering consulting firm to scale-up algorithms to model thermal energy management of whole circuit boards, such as those in TV set-top devices and small computers.

KLW Plastics, a plastic container manufacturer

Where: Monroe, Ohio, in Butler County
OSC's contribution: Working with KLW Plastics and Kinetic Vision, a Cincinnati engineering consulting firm, improve algorithms used to optimize the amount of plastic used for their containers.



Every industry can benefit from computational science. For example, the National Center for Manufacturing Sciences, OSC, TotalSim, SimaFore and Nimbis Services have collaborated to create a computational fluid dynamics tool with which automotive suppliers can model aerodynamic forces over a vehicle/trailer body.

Midwest Precision, precision machining company

Where: Eastlake, Ohio, in Lake County
OSC's contribution: Assist the Lockheed Martin supplier model components of a new electro-hydraulic actuator product.

Technology Management Inc., a fuel cell manufacturer

Where: Highland Heights, Ohio, a Cleveland suburb
OSC's contribution: Help the Lockheed Martin supplier develop thermal models of heat exchangers and steam reformers for their fuel cell systems.

Engendren, an industrial radiator manufacturer

Where: Kenosha, Wisconsin
OSC's contribution: Assist with modeling certain types of product failures, with the goal of revising designs so that products have longer life spans.

Jeco Plastics, a pallet and shipping container manufacturer

Where: Plainfield, Indiana
OSC's contribution: Helped simulate changes to the design of a large plastic pallet, in support of a customer request. As a result, Jeco was awarded a large contract by an automobile manufacturer.