

# Standard view: Supercomputer is valuable state asset

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Wednesday marked the first show-and-tell day for “Big Sky,” Montana’s biggest and fastest computer, now humming away inside Butte’s Thornton Building on Broadway.

Small businesses and university departments both locally and around the state are tapping its power with great success. Computing that once took days, even weeks, can be accomplished in mere hours on this machine.

For example, **Montana State University’s computer science department** is developing software that simulates ecosystems such as water flow in an entire river basin. The model shows how changes in climate or impacts from potential development would affect the river system.

Research professor Clemente Izurieta said it used to take a week to run the model once; now they can complete 10 simultaneous runs a day, each with slightly different variables plugged in.

Izurieta said access to this computing power could help the university secure future National Science Foundation grants. “It’s a big resource to tout,” he said of the computer.

That same basic message was delivered in numerous forms throughout the day, including two presentations from Montana Tech professors, one from MSE and another from the Butte-based National Center for Health Care Informatics.

The 3.8-teraflop computer is run by the nonprofit Rocky Mountain Supercomputing Centers, Inc. Earl Dodd, a former high-level IBM executive with roots in southwest Montana, recently quit his Houston-based job to come home and become executive director of RMSC. Dodd was born in Dillon, raised in Twin Bridges and graduated from Montana Tech.

Dodd was a strategist and worldwide business development executive for IBM; now he’s applying his skills and knowledge to building a statewide client base for RMSC.

He told The Standard that his goal is to “democratize supercomputing — make it understandable, available, affordable to the masses.”

This type of high-level computing power is typically found only in academic or national lab settings, Dodd explained, and he wants to open it up to help small and medium-sized Montana businesses, tribes, governments as well as universities.

“We can take on problems people struggle with that are numerically intensive, data intensive, pixel intensive,” he said.

The center has some paying customers now, but computing services are initially offered for free to demonstrate the value of the system. Once companies see how it works and what it can accomplish for them, they're willing to pay, Dodd said, adding that an announcement will be coming soon about a wind energy company moving its processing work to Butte.

He said the Butte machine is running at roughly 50-percent capacity with current clients, and he envisions adding more and more computing power over the years (on up to 40-50 teraflops) as demand for services grows.

This business model of a "high performance computing cloud" offering services on demand has never been tried before, he said, and because of that it also has value to big industry players such as IBM and Microsoft.

"We're a sandbox for them," he said, "to be able to test in a production environment some new things as we move into this new world of cloud computing."

We don't feign a firm grasp on what he's talking about, but this cutting-edge plan from a Montana –roots professional with broad industry connections and experience appears to have many potential future benefits for the state and for Butte.

RMSC will be back before the 2011 Legislature, probably seeking another \$2 million to help with future expansion and operating costs, but Dodd sees that as an investment in economic development that will pay far greater returns in the form of attracting new business to the state, helping existing companies stay in business and helping universities stay "on the top of the research curve."

"If you don't compute, you don't compete," Dodd told those gathered at the inaugural "Application Day 2010."

And he's probably right.