

- [Home](#)
- [About Dennis Walsh](#)

[Dreams Create The Future](#) [The Urban Village](#)

Supercomputers: Thinking Green

On December 3, 2011, in [Uncategorized](#), by admin

Science and technology use extreme scale supercomputers, but the power consumption of these systems has already reached the 10 megawatt to 20 megawatt range. Large supercomputers will use as much power as a small town. That is not sustainable.

0
tweets
tweet

To prevent this type of insane power consumption, supercomputers are being developed that are five times more energy-efficient than some current solutions while also delivering exascale-level performance. IBM's next generation supercomputing project, Blue Gene/Q, will provide an ultra-scale technical computing platform to solve the most challenging problems with more energy efficient, and more reliable rates than ever before. It is expected to achieve 20 petaflops at peak performance, marking it as one of the fastest supercomputers in the world.

The Ohio Supercomputer Center empowers a wide array of groundbreaking innovation and economic development activities in fields like bioscience, advanced materials and data exploitation. The Center leads strategic research of vital interest to the State of Ohio, the nation and the world community. Ohio researchers have benefited. Those that use OSC have won over \$140M of research funding for Ohio – a return on investment of 24:1.

But what of the energy use? When the power bill required to do a calculation is more expensive than other modeling and simulation options, researchers and engineers will move to the cheaper option, unless the Return On Investment (ROI) is high enough.

“There are a number of reasons that I support sustainability, a key one is general conservation of resources,” says Kevin L. Wohlever, Director Supercomputer Operations, Ohio Supercomputer Center. “I am a person that like to look at trends and try to make some predictions on technological directions. The information can then be used to identify potential future problems.”

Doing the right thing will always have an impact on the the bottom line. “The pay off may not be as fast as some would like,” says Wohlever. “But I feel there is always a positive payoff or ROI. At OSC, we are responsible for providing the fastest computational modeling environment possible. At the same time, we share a facility with other state organizations that also need power and cooling. The more computational load we add to the environment, the less that is available to other organizations in the computer center. We try to be good neighbors and allow everyone to grow.”

The Center's program goals at the moment are to keep adding computational power while keeping power and cooling use at or below previous environments. So, actual Watts per Computational Flop and Watts per stored Byte have dropped.

They are able to add new capabilities while keeping inside our power budget. “I know of one local location that had an immediate ROI. Just by changing from CRT monitors to LCD flat screen monitors, the power savings paid for the new monitors in less than 1 year. That is an extreme example of what can be done in a large company, but it does show the potential of thinking green,” he says.

Leave a Reply

Name (required)

Mail (will not be published) (required)

Website

Submit Comment

Search



Categories

- [Uncategorized](#) (161)

Tags

[sustainable urbanization](#)

Articles

- [December 2011](#)
- [November 2011](#)
- [October 2011](#)
- [September 2011](#)
- [August 2011](#)
- [July 2011](#)
- [June 2011](#)

Links

- [Documentation](#)
- [Development Blog](#)
- [Suggest Ideas](#)
- [Support Forum](#)
- [Plugins](#)
- [Themes](#)
- [WordPress Planet](#)

Meta

- [Log in](#)
- [Entries \(RSS\)](#)

[Go To Top »](#)

[International Division](#)

Pages

- [Home](#)
- [About Dennis Walsh](#)

Stay In Touch

- [Site RSS Feed](#)

More

Thanks for dropping by! Feel free to join the discussion by leaving comments, and stay updated by subscribing to the [RSS feed](#).