

## Coders tool up for 10 petaflop Blue Waters super

By Rich Brueckner , 2 Feb 2011

The National Center for Supercomputing Applications (NCSA) at the University of Illinois has published an [interview](#) with professor Laxmikant Kale, who is helping scientists tune their applications for the 10 Petaflop [Blue Waters](#) supercomputer that will come online sometime in 2011.

That's no small problem since the hardware doesn't yet exist.

*The distinguishing feature of [Charm++](#) and [Adaptive MPI](#) is that the programmer does not have to worry about the number of processors, the programmer doesn't write to the processors. Instead they break the simulation into data and work units, and then the runtime system assigns those to the processors. This gives the system flexibility to deal with issues like dynamic load balancing and automatic fault tolerance, without the programmer having to do anything about it.*

For a machine as big as Blue Waters, doing an accurate code simulation would simply take too long on conventional hardware. Instead, Kale helps users run an emulation and record all the dependencies between computation blocks and messages. This allows them to identify bugs in a program that appear only at scale.

Read the [full story](#).

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