Beating the Real Thing!
(Or: How I learned to stop worrying and love the computer architecture.)

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Shared memory programming, for example, OpenMP and POSIX threads, simplifies the programming task in three ways:

1. data is automatically moved to where it is needed
2. popular data will automatically be replicated
3. coherence between replicated data is guaranteed

The program “sees” one address space shared between the processes/threads. However, only architectures with sophisticated support for coherent memory can run such applications. Specifically, systems built from cluster of nodes can not efficiently run such programs.

Software implementations of shared memory are still far behind the performance of hardware-based shared memory implementations and are not viable options for most fine-grain shared-memory applications. This talk is about a new software-based system called DSZOOM, which consistently demonstrates a stable and comparable performance to hardware-based distributed shared memory implementations.

Information about this research can be found here:
http://www.it.uu.se/research/group/uart/
http://www.dszoom.org