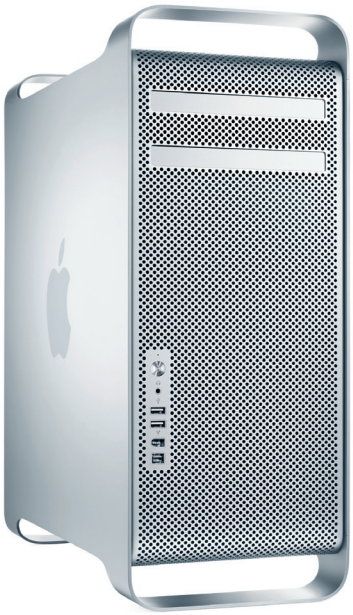
ACS ADVANCED CLUSTER SYSTEMS, LLC

Math Supercomputer-In-A-Box™



The **Math Supercomputer-In-A-Box** is an integrated, very affordable, 8-CPU Mathematica* Supercomputing solution that reduces execution time of Mathematica algorithms by up to 700%.

About the hardware: With two Quad-Core (8-CPU) Intel Xeon processors up to 3GHz, an enhanced 128-bit SSE3 vector engine, and up to 16GB of ECC memory, the Mac Pro workstation is the fastest Mac ever and is widely used in scientific applications.

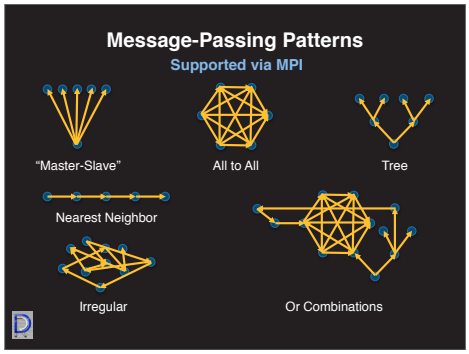
About the software:

- **Mathematica:** Long recognized as the world's most powerful mathematical software system, Wolfram Research Mathematica has steadily grown in breadth and depth to become today an unparalleled platform for all forms of computation. Eight Mathematica kernels (One for each CPU) are provided as the Math Engine.
- **SEM** (Supercomputing Engine for Mathematica) which provides the critical link that turns a standard Mathematica loaded 8-core workstation to a true 8-CPU Math Supercomputer.

What exactly is SEM (Supercomputing Engine for Mathematica)?

SEM is a unique, patent-pending technology produced via a collaboration between Dauger Research, Inc., and Advanced Cluster Systems, LLC.

Closely following the supercomputing industry-standard Message-Passing Interface (MPI), SEM creates a standard way for every Mathematica kernel in the Mac Pro or a group of Mac Pros to communicate with each other directly. In contrast to typical grid implementations that are solely master-slave or server-client (Such as gridMathematica*), this solution instead has all kernels communicate with each other directly and collectively the way modern supercomputers do.



SEM's under-the-hood patented technologies such as Dauger Research's Pooch* (Parallel OperatiOn and Control Heuristic application) and MacMPI provide the support infrastructure to enable this supercomputing-style parallel startup and inter-kernel communication. After locating, launching, and coordinating Mathematica kernels on the workstation, SEM creates and supports an "all-to-all" communication topology, which high-performance computing practitioners find necessary to address the largest problems in scientific computing since the earliest large supercomputers, all within the Mathematica computing environment. SEM provides a reach library of high-level Mathematica commands that closely follow the MPI standard.

Great Tool for Research: Enabling Mathematica kernels to be harnessed together the way supercomputers are, the fusion of SEM, Mathematica and the Mac Pro workstation enable researchers access to a cost effective, heavy duty research tool for solving math-intensive problems in ways never possible before. Mathematica is now practically a high level language for developing true supercomputing codes!

Expandability: Need more computational power? Need more than 16GB RAM to hold your Mathematica problem? Just connect additional Math Supercomputer-In-A-Box units via a standard Gigabit network. For example, networking 4 Math Supercomputer-In-A- Box workstations produces a powerful 32-CPU, 64GB Distributed RAM Math Supercomputer that reduces execution time by up to 2,700% right at your office!

Who can benefit from a Math Supercomputer-In-A-Box?
Application areas include Simulation, Modeling, Numeric and Algebraic Computations, Visualization, Large-Scale Data Analysis, Cryptography.

Fields of use include Aeronautics, Astronomy, Bioinformatics, Chemistry, Drug Research, Engineering, Finance, Mathematics, Physics, Statistics.

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