

Wolfram *Mathematica*[®] 6

PERSONAL GRID EDITION

Personal supercomputing arrives.

With *Mathematica Personal Grid Edition* and new cost-effective quad-core computers, personal supercomputing is now a reality. *Mathematica Personal Grid Edition* eliminates the barriers to using parallelism as part of your daily workflow—with no administrative overhead and no contending for shared resources—and opens the door to new possibilities in high-performance computing. You can easily tackle larger problems and investigate parallel approaches at any stage of the problem-solving process—right at your desk and at your own convenience.

Take advantage of the world's largest algorithm collection—in one integrated system.

- Integrates thousands of algorithms for numeric and symbolic computation, discrete mathematics, statistics and data analysis, graphics, visualization, and general programming
- Automatic algorithm selection and arbitrary-precision control
- Sustained performance equal to specialized numeric libraries
- Industrial-strength string manipulation, universal database connectivity, web services support, cluster analysis capabilities, and high-speed binary data I/O

Run programs in parallel, increasing computation speed up to four times compared to a standard *Mathematica* computation.

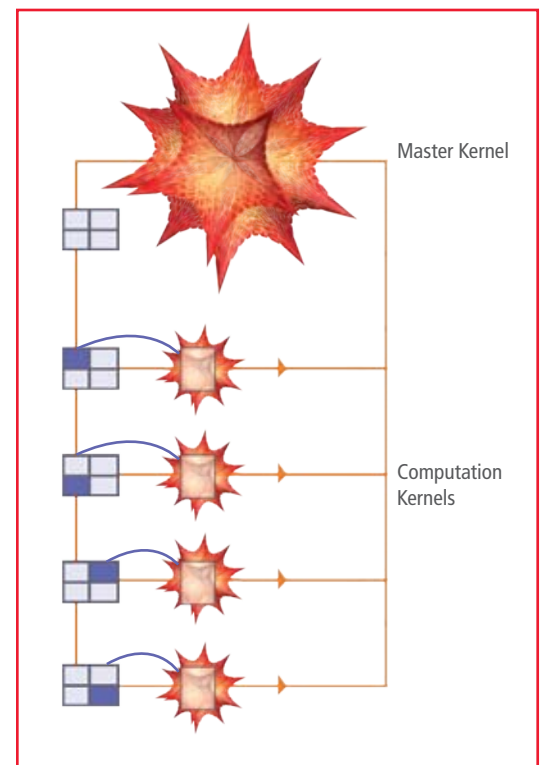
- Combines the only high-level advanced symbolic programming language with a uniquely productive development environment for parallel applications
- Replaces thousands of lines of Fortran or other legacy code with single commands
- Optimized for all major high-performance 32-bit and 64-bit CPUs
- Machine independent—your code runs on all available platforms
- APIs for C, Java, .NET, Python, and other scripting languages

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



For more information, visit www.wolfram.com/personalgrid.

Wolfram *Mathematica*⁶ PERSONAL GRID EDITION

Mathematica Personal Grid Edition Features

- Parallelization at the *Mathematica* language level
- Machine independent—user code is completely portable
- High-performance *MathLink*[®] communication protocol optimized for all common configurations
- Efficient, adaptive load balancing
- Automatic failure recovery and reassignment of stranded processes
- Automatic or user-programmable scheduling for problem-specific adaptation
- Support for tracing and debugging
- Speculative parallelization for nondeterministic problems
- Data parallelism and general concurrency models
- Virtual shared memory and synchronization

General Mathematica Features

- Over 2200 built-in functions, including the world's largest collection of advanced algorithms for numeric and symbolic computation, discrete mathematics, statistics, data analysis, graphics, visualization, and general programming
- System-wide dynamic interactivity, allowing the creation of full-function dynamic interfaces for arbitrary objects, including 2D and 3D graphics, math, tables, text, and more
- Automatic creation of high-fidelity, high-impact 2D, 3D, and dynamic visualizations of functions and data with the introduction of 25+ new core visualization types and 50+ new general visualization options
- Over two gigabytes of load-on-demand curated data for math, physics, chemistry, finance, geography, linguistics, and more
- New level of automation for handling external data, including support for hundreds of formats and subformats across a full range of areas
- Multiparadigm symbolic programming language with support for procedural, functional, list-based, object-oriented, and symbolic programming constructs
- Automatic precision control and support for exact integers of arbitrary length, rationals, floating-point real and complex numbers, and arbitrary-precision real and complex numbers
- Unification of active graphics and controls with flowing text and input
- Automated computational aesthetics, with algorithmic optimization for visual presentation
- User-defined or automatic algorithm selection for optimal performance
- High-speed numerical linear algebra with performance equal to specialized numeric libraries
- High-performance optimization and linear programming functions
- Industrial-strength string manipulation
- Built-in universal database connectivity
- Highly optimized binary data I/O allowing fast import of any binary data
- Integrated web services support
- Language bindings to C, Java, .NET, Python, and scripting languages
- All-platform support for 64-bit addressing

Technical Requirements

Mathematica Personal Grid Edition is available for all common Linux and Unix systems, Windows, and Mac OS X. For a complete list of supported platforms, visit www.wolfram.com/mathematica/platforms.

For more information about technical requirements, visit www.wolfram.com/personalgrid/specifications.html.