

# SciFinance®

## *Contributing to the bottom line*

SciFinance® is a code synthesis technology for building derivatives pricing and risk models. SciFinance automatically produces C/C++ pricing model source code from concise, keyword-rich pricing model specifications. SciFinance is not an inflexible set of library routines, but a concise, flexible, and extensible language that supports the modeling of any derivative instrument that can be valued using PDE or Monte Carlo techniques. At a keystroke, quantitative developers at financial institutions around the world enjoy easy access to state of the art pricing model techniques and methodologies with the comfort that all pricing models are open to inspection and review; there are no black boxes.



### SciFinance—Focusing on cost management and reducing expenditures



#### SciFinance Reduces Model Development Costs and Improves Efficiency

- SciFinance includes hundreds of existing model specifications that quantitative analysts may select from when building a pricing and risk model.
- Financial engineers access cutting edge numerical methodologies and routines through keywords, not by writing a lengthy series of numerical equations and instructions.
- Reduced development time for pricing models—quantitative analysts spend less time writing model specifications and hand coding the models and more time testing, evaluating and understanding the potential risk exposure of the pricing model.

#### SciFinance Parallel Codes Reduce Development & Operational Costs

- Automatically generates parallel code styles for Monte Carlo models (including complex processes and/or path dependencies and Bermudan exercise/callable structures).
- No parallel computing expertise required.
- OpenMP codes execute on multi-processor workstations with nearly linear speed-up (e.g. a factor of 3.9X on a quad-core PC or 22X on a 24 CPU workstation).
- GPU codes demonstrate astounding accelerations: 30X-60X (one GPU) and 50X-100X (dual GPUs), all on a standard PC.
- One PC equipped with several inexpensive Nvidia GPU cards can replace many racks of blades with a single box, with commensurate reduction in both footprint and energy consumption.

#### SciFinance Reduces Development Time and Increases Risk Analysis

SciFinance generates the pricing and risk model code for new derivative instruments in a matter of minutes. The open and transparent architecture of the system allows quantitative developers to formulate, test and refine alternative pricing and risk strategies at unprecedented speed.

#### SciFinance Reduces Integration Costs

SciFinance-generated code can be seamlessly integrated with trading and risk systems. The process is made completely automatic by the SciIntegrator™ module. By simply adding a keyword to the model specification, developers can automatically generate Microsoft Excel, COM, .NET, or Java interfaces (customized interfaces are also available). In addition, SciFinance does not impose any data model, which facilitates code integration.

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