

# Frontline Solvers Tools for Excel Comparison Chart

(We also have comparison charts available for our [Academic](#) products our [SDK](#) products for developers.)

	Platform Solver Line		Professional Solver Line	
	Risk Solver Platform	Premium Solver Platform	Risk Solver Pro	Premium Solver Pro
<b>Product Scope</b>	<ul style="list-style-type: none"> <li>Conventional Optimization</li> <li>Monte Carlo Simulation</li> <li>Simulation Optimization</li> <li>Stochastic Optimization</li> <li>Decision Trees</li> </ul>	<ul style="list-style-type: none"> <li>Conventional Optimization</li> </ul>	<ul style="list-style-type: none"> <li>Monte Carlo Simulation</li> <li>Decision Trees</li> </ul>	<ul style="list-style-type: none"> <li>Conventional Optimization</li> </ul>
<b>Platform</b>	Windows	Windows and Mac	Windows	Windows
<b>Built-in Solver Engines</b>				
Evolutionary	Yes (Faster)	Yes (Faster)		Yes
Linear	Yes (LP/QP)	Yes (LP/QP)		Yes (LP)
Nonlinear	Yes (LSGRG)	Yes (LSGRG)		Yes (GRG)
Interval Global	Yes	Yes <sup>1</sup>		
SOCP Barrier	Yes	Yes		
<b>Optimization Problem Types and Sizes</b>				
Solves LP, MIP, NLP, and NSP problem types	Yes	Yes		Yes
Special Solvers for QP, QCP, and SOCP problem types	Yes	Yes		
Linear Variables x Constraints	8000 x 8000	8000 x 8000		2000 x 8000
Nonlinear Variables x Constraints	1000 x 1000	1000 x 1000		500 x 250
Non-Smooth Variables x Constraints	1000 x 1000	1000 x 1000		500 x 250
Integer Variables	Up to 2000	Up to 2000		Up to 1000
Accepts optional plug-In Solver Engines (w/unlimited Variables x Constraints)	Yes	Yes <sup>2</sup>		
<b>Constraints</b>				
Normal, Integer, Binary, semi-continuous, and alldifferent Constraints	Yes	Yes		Yes
Second Order Cone Constraints	Yes	Yes		
Probabilistic and Chance Constraints	Yes			
<b>Global Optimization</b>				
Non-Smooth Problems (Evolutionary)	Yes	Yes		Yes
Nonlinear Problems (Multistart)	Yes	Yes		Yes
Nonlinear Problems (Interval Global)	Yes	Yes		
Plug-in Solver Engines (Several Approaches)	Yes	Yes		
<b>Advanced Stochastic Optimization</b>				
Solve stochastic programming deterministic equivalent model	Yes			
Robust optimization for large scale models with uncertainty	Yes			
Automatic adjustment of chance constraints in robust optimization	Yes			
VaR/CVaR constraints with adjustable tolerances	Yes			

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<b>Simulation and Simulation Optimization</b>				
Fastest Monte Carlo simulation and simulation optimizations in Excel	Yes		Yes	
Fastest simulation optimizations in Excel	Yes		Yes (req. both products)	
State of the art simulation optimization & sensitivity/scenario analysis	Yes		Yes (req. both products)	
Simulation Optimization Variables and Constraints	1000 x 1000		500x250 (req. both products)	
Over 50 distributions and over 30 statistics and risk measures built-in	Yes		Yes	
Full support for fitting, certifying, and sharing distributions	Yes		Yes	
Ability to correlate uncertain input distributions	Yes		Yes	
Built-in chance constraints and risk measure objectives	Yes		Yes	
Full support for recourse decisions under uncertainty	Yes			
<b>Decision Trees</b>				
Easy to use decision trees with rollback values and sensitivity analysis	Yes		Yes	
Support for simulation with probability distributions in the tree	Yes		Yes	
Support for optimization of values in the tree	Yes		Yes	
<b>Ease of Use and Guidance</b>				
Context sensitive help and included example models	Yes	Yes	Yes	Yes
Comprehensive charting, reporting, and sensitivity/scenario analysis	Yes	Yes	Yes	Yes
Constraint wizard for easily specifying needed constraints	Yes	Yes	Yes	
Distribution wizard to help you select the right probability distribution	Yes			Yes
Built-in Guided Mode assistance	Yes	Yes		Yes
Automatic diagnosis of model type and selection of best engine	Yes	Yes		Yes
<b>Solution Speed and Accuracy</b>				
Directly access all available processor cores	Yes	Yes	Yes	
Find linear, nonlinear, non-smooth formulas	Yes	Yes	Yes	Yes
Determine whether model is convex	Yes	Yes	Yes	Yes
Determine if and how objective and constraints depend on uncertainty to enable stochastic transformation	Yes			
Use vectorized calculations to speed Monte Carlo trials	Yes		Yes	
"Linearize" IF, MIN, MAX, ABS, logical formulas for faster solution times and provably optimal solutions	Yes	Yes		
Psi Interpreter for fastest, most accurate, optimization solves	Yes	Yes		
Psi Interpreter for fastest, most accurate, simulations	Yes			
Use Stochastic Programming for Recourse constraints	Yes			
Use Robust Optimization for Chance constraints	Yes			

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<b>Speed (approximate vs. the basic Excel Solver)</b>				
Problem Setup	2-100X	2-100X		1-50X
Linear Problems	40X	40X		3X
Nonlinear Problems	7-15X	7-15X		1X
Mixed-Integer Problems	10-200X	10-200X		10-20X
Non-Smooth Problems	1-10X	1-10X		1-10X
Plug-in Solver Engines	10-1000X	10-1000X		
<b>Solver Reports</b>				
Answer Report	Yes	Yes		Yes
Solutions Report	Yes	Yes		Yes
Population Report	Yes	Yes		Yes
Limits Report	Yes	Yes		Yes
Linearity Report	Yes	Yes		Yes
Feasibility Report	Yes	Yes		Yes
Sensitivity Report	Yes	Yes	Yes	Yes
Simulation Report	Yes		Yes	
Simulation Parameter Sensitivity Report	Yes		Yes	
Uncertainty Report	Yes			
Scaling Report	Yes	Yes		
Structure/Convexity Report	Yes	Yes		Yes
Transformation Report	Yes	Yes		
<b>Charting Capabilities</b>				
Comprehensive chart customization including type (line, area, bar), headings, axis, and legend labels, cutoffs, and markers	Yes	Yes	Yes	Yes
Sensitivity charting including Tornado and Parameter Analysis	Yes	Yes	Yes	Yes
Multiple Optimization charting including Monitored Cell and Parameter Analysis charts	Yes	Yes		Yes
Multiple Simulation charting including Overlay, Trend, Box-Whisker, Parameter Analysis and Statistics charts	Yes		Yes	
Multiple Simulation Results charting including Overlay, Tend, and Box-Whisker	Yes		Yes	
Uncertain Functions charts including Frequency, CF, RCF, Sensitivity, and Scatter Plots	Yes		Yes	

<sup>1</sup> Premium Solver Platform for Mac does not include the Interval Global Solver engine.

<sup>2</sup> Premium Solver Platform for Mac supports all plug-in engines except Xpress and OptQuest.