



**SOFTWARE SURVEY , LINEAR PROGRAMMING**

The information in this survey is excerpted from responses to a 1-page questionnaire sent to more than 40 vendors in February 1997. The survey is not comprehensive. It reflects information received by the posted deadline. The information was collected and compiled by *OR/MS Today*. The listings are limited to software products that fit the parameters of the survey. All information was provided by the vendors.

Product	Publisher	Platform						Input formats			Algorithms & Features	New Features (since January 1996)	Comments
		DOS	Win 95	Win NT	Mac OS	Unix	Other	MPS	Spread-sheet	Proprietary			
AIMMS	Paragon Decision	-	<input type="checkbox"/>	<input type="checkbox"/>	-	-	-	-	-	<input type="checkbox"/>	-	-	AIMMS is tightly integrated with its solvers through function calls and supports quick "What-If" analysis
AXA	Sunset Software	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VMS, MVS, CMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Primal/Dual Simplex and Interior Point methods, Devex Pricing and branch and bound integer code	Primal/Dual Interior Point Algorithm and multi process support	The XA Professional Linear Programming System solves optimization problem. Available as a library to be included directly in any program.
BPMPD	Cs. Meszaros, MTA SZTAKI	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	-	<input type="checkbox"/>	-	-	Primal/Dual interior point method w/presolve, minimum local fill-in ordering, supernodal factorization & warm-start	This package is new	-
CPLEX for AMPL	<a href="#">Compass Modeling Solutions</a>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	ALPHA, WIN, NT	-	-	<input type="checkbox"/>	Simplex (Primal, Dual, Network), branch and bound, Barrier (including QP)	Quadratic Programming	Designed to work with AMPL and AMPL PLUS
CPLEX Linear Optimizer/Callable Library	CPLEX Optimization, Inc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High-performance primal, dual and network simplex; primal/dual log barrier; branch & bound MIP w/SOS,	High-performance parallel versions available on several platforms	Extremely fast, robust LP, MIP, and QP solvers available in interactive and callable library formats. Callable library enables embedding CPLEX's world-



													cuts and heuristics; parallel algorithms available		renowned algorithms apps.
C-WHIZ	Ketron Management Science	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	Win. 3.x, OS2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			Aggressive, non-destructive LP presolve, mixed integer presolve	All model size limits have been removed from C-WHIZ. An inter-active Windows front-end includes matrix display and edit feature	C-WHIZ performance is enhanced by: exploitation of supersparsity to minimize use of memory & processing; choice of factorization algorithms based on model size, complexity
DecisionPRO Professional 2.1	Vanguard Software Corporation	-	<input type="checkbox"/>	<input type="checkbox"/>	-	-	WIN. 3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			Embedded features: linear programming, nonlinear optimization decision tree analysis, Monte Carlo simulation, forecasting and curve fitting	-	DecisionPRO is an integrated application for business analysis & modeling. It provides advanced management techniques in a flexible modeling environment
FORT MP	Numerical Algorithms Group, Inc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	VMS, Cray, Convex	<input type="checkbox"/>	-	<input type="checkbox"/>			Sparse Simplex with DEVEX and special CRASH algorithm. IPM with choleski and augmented solver, primal-dual basis recovery. Branch and bound, cut algorithm for integer programming.	Client/server software environment which uses MPL as the client and FortMP as the server. Can be connected to an other modeling system as the client.	FortMP compares with most of the modern MP systems in terms of its robustness, technical capabilities. It can be supplied in the source form and has been embedded in user applications.
GAMS	GAMS Development Corporation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	VMS	-	-	<input type="checkbox"/>			OSL / CPLEX / XA / LOQO / MINOS / CONOPT / BDMLP	-	-
HS/LP®	Haverly Systems, Inc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	-	WIN. 3.x	<input type="checkbox"/>	<input type="checkbox"/>	-			Branching and node selection, priority list, penalties, best properties	-	HS/LP is available alone or bundled w/OMNI. OMNI includes interfaces to relational database systems, modeling language and reporting
IBM Optimization	IBM Corporation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	IBM main-frames, VM	-	-	-			Solvers: LP, QP, Network and MIP	Modules for transforming general	OSL is industrial strength optimization software



Subroutine Library (OSL)							& MVS, AIX, SPs				for LP problems; strategies in quadratic objective. Provision for repeatedly modifying & resolving problems.	integer problems, identifying special ordered sets in MIP problems & analyzing infeasible LP problems.	competitive in speed w/any and faster than most. Strong points include: flexibility, power and reliability.
ILOG Planner	ILOG	-	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	-	-	-	<input type="checkbox"/>	ILOG Optimization Suite provides a set of constraint solving algorithm for linear and nonlinear constraints that collaborate to compute solutions.	-	ILOG Solver and ILOG Planner are well-adapted to MILP problems and to problems involving linear & nonlinear constraints.
LAMPS	Advanced Mathematical Software	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	VAX/VMS	-	-	-	Windows DLL	Parametrics and ranging	
LINDO	LINDO Systems, Inc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	Open VMS	<input type="checkbox"/>	-	<input type="checkbox"/>	A full range of solve options are available.	New Windows version available with full graphical interface and callable DLL	A large scale linear, nonlinear and integer add-ins to Excel and 1-2-3. It's ideal for building easy-to-use models for managers and clients.
LINGO	LINDO Systems, Inc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	Open VMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	A full range of solve options are available	Significant performance enhancements to IP and NLP solvers	LINGO combines fast linear and nonlinear solvers with a modeling language that allows concise problem expression and offers a variety of options for data storage.
LP/MIP Solver DLLs	<a href="#">Frontline Systems, Inc.</a>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	-	-	-	-	<input type="checkbox"/>	Simplex with bounds on variables, branch and bound, very fast exact QP algorithm	Faster on integer problems, improved scaling, simpler calling conventions	Callable from Visual Basic, C/C++, other languages. Ideal for applications distributed in high volume, Internet client and/or server applications.
LPS-867	Applied Automated Engineering Corporation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	-	<input type="checkbox"/>	<input type="checkbox"/>	-	Product form of inverse, revised simplex algorithm	32 bit Windows 95 and Windows NT versions	Consulting services available, other algorithms
LSSOL	Stanford Business Software, Inc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All	-	-	-	Simplex method. Does not	-	LSSOL is developed by Systems Optimization



													Laboratory at Stanford University.
LS-XLSOL for AMPL	Compass Modeling Solutions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	-	-	-	-	<input type="checkbox"/>	Primal Simplex, branch and bound	-	Designed to work with AMPL and AMPL Plus.
Math Pro 2000	Math Pro, Inc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	-	<input type="checkbox"/>	-	<input type="checkbox"/>	Supports all algorithms in the solver used including presolve, SOS1 & SOS2, RHS & OBJ ranging, parametrics	Windows 95 & Windows NT implementation, HTML output, extensions to case management	An integrated, interactive modeling system, with GUI, case management, symbolic model formulation, matrix generation, solver control, solution query and display, and reporting
MIMI	Chesapeake Decision Sciences, Inc.	-	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	-	-	<input type="checkbox"/>	<input type="checkbox"/>	Integrated with both CPLEX and OSL	Improved barrier algorithms. Many user interface improvements	-
MINOS	Stanford Business Software, Inc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All	<input type="checkbox"/>	-	-	Simplex Method. Takes advantage of sparsity. Numerically stable algorithms used.	-	Developed by Systems Optimization Laboratory at Stanford University.
MINOS for AMPL	Compass Modeling Solutions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	-	-	-	<input type="checkbox"/>	LP-Simplex. Also nonlinear programs	-	Designed to work with AMPL and AMPL Plus.
MPL Modeling System	Maximal Software, Inc.	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	-	<input type="checkbox"/>	<input type="checkbox"/> P/MIP/Barrier, infeasibility finder, advanced basis, presolve, networks, iteration logs, parameter options.	New release 4.0 of MPL includes 32 bits for Windows 95/NT, project files, tree window and enhanced ODBC data connection.	Free download of the student trial version of MPL and CPLEX available from web site.
O-Matrix	Harmonic Software, Inc.	-	<input type="checkbox"/>	<input type="checkbox"/>	-	-	Win 3.1	-	<input type="checkbox"/>	<input type="checkbox"/>	Optimization methods, Salmon filtering, Factorization	Link external C, C++, FORTRAN	O-Matrix provides an interactive visualization environment with compiled language performance.
OMNI LP Management System	Haverly Systems, Inc.	-	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	Windows	<input type="checkbox"/>	<input type="checkbox"/>	-	Direct links with CPLEX and OSL solvers	-	Includes modeling language, LP Solver, reporting, database connections. Can also be used with CPLEX and OSL solvers.



Parallel XPRESS-MP	Dash Associates Ltd.	-	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	PC	<input type="checkbox"/>	-	<input type="checkbox"/>	Special Ordered Sets, Semi-continuous variables, Partial Integers, Cutting Planes. Integer and LP presolve.	High speed, low latency proprietary communications system introduced. Supports Windows 3.11	Designed to exploit multi-processor computers and networks of workstations and/or Pcs. Parallel PRESS delivers large speed-ups on big Mixed Integer Programming problems.
Premium Solver for Excel	<a href="#">Frontline Systems, Inc.</a>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	-	-	-	<input type="checkbox"/>	-	Simplex with bounds on variables, branch and bound, very fast exact QP algorithm.	Excel '97 and 1-2-3 '97 versions; improved scaling and linearity test; one-step non-negative and binary integer selection.	From the developers of the Solvers built-in to Excel, 1-2-3 and Quattro Pro. Suitable for industrial strength problems. Versions for Excel 5.0, 95, 97.
SAS Software	SAS Institute, Inc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All other	<input type="checkbox"/>	-	<input type="checkbox"/>	Revised simplex with LU basis factorization, numerous pricing schemes and other options. Network flow programming w/side constraints & nonarc variables.	-	The software allows extensive customization of the many optimization and analysis tools offered. Integration w/ the entire SAS software suite allows greater innovation by users.
SCICONIC	EDS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	DEC Open/	<input type="checkbox"/>	-	-	Primal/dual presolve, postsolve, crash, devex, anti-cycling, for rest-tomlin, scaling, basis structure analysis, anti-instability pivoting, dual, ranging, tolerances.	Subroutine library, atomic modification of problem during solution, including adding rows & columns in branch and bound; user-defined entities	Leading MIP optimizer, ground breaking subroutine library; next release will include extended pre-presolve, probing, coefficient reduction and cut generation.
SD Pims	Aspen Technology, Inc.	-	<input type="checkbox"/>	<input type="checkbox"/>	-	-	-	-	<input type="checkbox"/>	-	-	Mixed Integer, Additional reports	SDPims is a multi-node, multi-period, multi-transportation mode supply and distribution LP system.
Smart Optimizer (SOPT)	SAITECH, Inc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	-	<input type="checkbox"/>	-	-	Simplex/interior LP, heuristic search algorithms for IP, convex and quadratic programming methods, subroutine	SOPT2.1 released with improved file handling capabilities.	Lightning-fast speed for solving all integer and/or quadratic programs. Ideal for application such as scheduling, planning and combinatorial optimization.



Speakeasy	Speakeasy Computing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	VAX/VMS	-	<input type="checkbox"/>	<input type="checkbox"/>	and DLL libraries for applications.	Interface to IBM OSL	Windows 95/NT	High level, interactive, problem-solving tool. Access computers using vector, array, matrix and time-series mathematics, econometric modeling and interactive graphics.
Visual Math Programming (VMP)	Sundown Software Systems, Inc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	-	-	-	-	<input type="checkbox"/>	Just plain vanilla simplex	Data export/import via Comma Separated Value files	Matrix Schematic formulation technique. Useful as a teaching tool before moving on to full-featured system.	
What's Best!	LINDO Systems, Inc.	-	<input type="checkbox"/>	<input type="checkbox"/>	-	-	-	-	<input type="checkbox"/>	-	A full range of solver options are available.	Faster integer and linear solvers, support of multi-sheet files, new Visual Basic interface, toolbar	What's Best! is a large scale, linear, nonlinear and integer add-in to Excel and Lotus 1-2-3. It's ideal for building easy-to-use models for managers and clients.	
XL SOL for AMPL	Compass Modeling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	-	-	-	-	<input type="checkbox"/>	Primal Simplex, branch and bound	-	Designed to work with AMPL and AMPL Plus.	
XL SOL Solvers for AMPL	<a href="#">Frontline Systems, Inc.</a>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	-	-	-	-	<input type="checkbox"/>	Simplex with bounds on variables, branch and bound, very fast QP algorithm	Faster on integer problems, improved scaling	The lowest cost Windows-based solvers for AMPL and AMPL Plus.	
XPRESS-MP	Dash Associates Ltd.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Win. 3.1,	<input type="checkbox"/>	-	<input type="checkbox"/>	Special ordered sets, semi-continuous variables, partial integers, cutting planes.	Interior point optimizer. Embedded C-like language. ODBC connectivity. Goal programming. Integrated modeler/optimizer subroutine libraries.	A complete high performance system providing facilities for modeling and solving large-scale, linear, integer and quadratic programming problems.	
XPRESS-MP for Windows	Dash Associates Ltd.	-	<input type="checkbox"/>	<input type="checkbox"/>	-	-	Win. 3.1	<input type="checkbox"/>	-	<input type="checkbox"/>	Special ordered sets, semi-continuous variables, partial integers, cutting planes. Integer an LP presolve.	Interior Point Optimizer. Embedded C-like language. ODBC connectivity.	A modeling and optimization system for linear and integer programming with the look and feel of Microsoft Windows.	



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