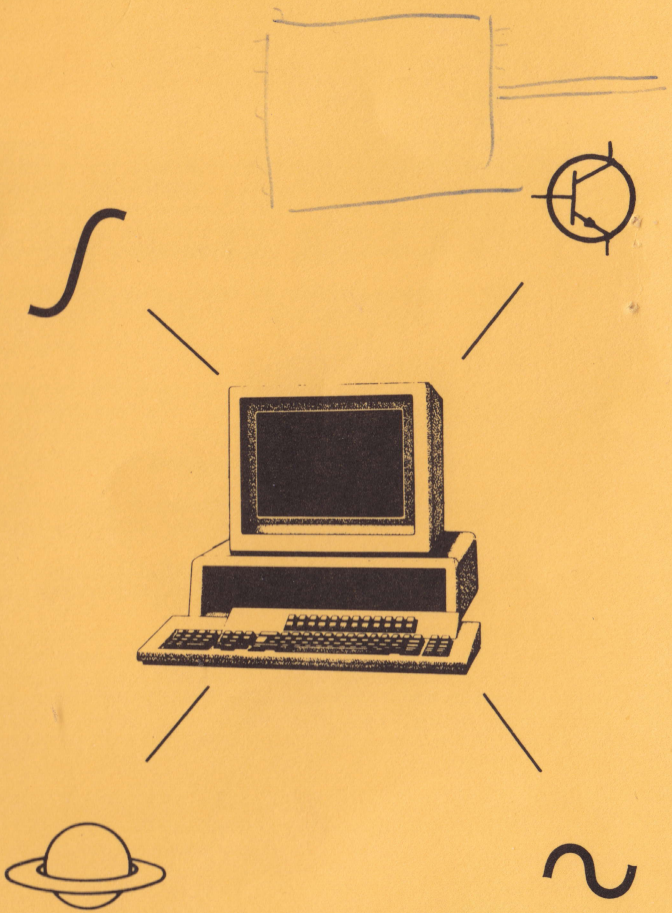
CATALOG 86-01

# SCIENTIFIC COMPUTING



The name of the product manufacturer is given next to the product name.

The requirements which need to be satisfied in order to use the product are contained within the [ ] symbols. These appear after the product description.

Shipping information appears at the end of the catalog.

**GRAFMATIC - Microcompatibles, Inc.**

Libraries of screen graphics routines for the FORTRAN and Pascal programmer. Draw solid, dashed or dotted line in color of your choice. Light pen interface. Paint/fill a selected region. Auto-scaling, auto-axis generation, auto-tic mark lables, function plots, tabular plots, auto-function plots, bar charts, and pie charts. Countour, log, parametric plots. 3D rotations, scaling, translations. 3D wire frame model and solid models. Cubic and bicubic spline interpolant. Least squares fit.

[IBM PC or compatible, 256K, MS-DOS, graphics capability. Screen dump must be to an Epson or IBM dot matrix printer unless GRAFPLUS (see below) is implemented.]

$120.00

**PLOTMATIC - Microcompatibles, Inc.**

Similar to GRAFMATIC but for pen plotters. Though a stand-alone program, it is designed to provide an easy interface with GRAFMATIC to produce a (lower resolution) screen preview of your pen plot.

[IBM PC or compatible, MS-DOS, RS-232 interface to plotter]

$120.00

**OMNIPLOT [S] - Microcompatibles**

Integrated stand-alone graphics libraries to drive your CRT monitor. No programming required. Key in data in response to menu prompts or read your data from a disk file. Choose from an assortment of graphics formats: tabular, line, bar or pie charts, and contour plots. Create 3D plots with a choice of wire frame or hidden surface removal. Choose standard, semi-log or log-log scales; gridding; error bars; line colors and types; marker symbol colors and types. Cubic spline interpolations and least squares fitting options. Two levels of on-screen help commands.

[IBM PC or compatible, 256K, MS-DOS, graphics capability. Screen dump must be to an Epson or IBM dot matrix printer unless GRAFPLUS (see below) is implemented.]

$175.00

**OMNIPLOT [P] - Microcompatibles**

Similar to OMNIPLOT [S] but for pen plotters. Does not do hidden surface removal.

[IBM PC or compatible, 256K, MS-DOS, graphics capability. Screen dump must be to an Epson or IBM dot matrix printer unless GRAFPLUS (see below) is implemented.]

$275.00 (includes OMNIPLOT [S]. OMNIPLOT [P] cannot be purchased separately)

**GRAFPLUS - Jewell Technology**

Can be used in conjunction with GRAFMATIC and OMNIPLOT [S] to support a screen dump to virtually every dot matrix printer availible, and is required by these programs when using Hercules Monochrome card.

$50.00

**TEKMAR - Advanced Systems Consultants**

A Fortran library including graphics functions which are callable from your program. These include: WINDOW, VIEWPORT, AXIS, MOVE, DRAW, RMOVE, RDRAW, ROTATE, PAINT, FILL, POLYGN, ELLIPSE, SET GRAPHICS MODE, SET FOREGROUND, SET BACKGROUND, SET ALPHA MODE. Makes use of Graphics Master's dithered fill, allowing 112 different colors on a 16-color monitor. Least-squares fitting and plotting for polynomials, cubic splines and other curve types. Contour finding and plotting. 3-D

software with hidden line removal and rotations. Function-key interrupt support from Fortran. Graphics dump to Epson, NEC, Okidata, or Toshiba printers. Save graphics to disk. Support for Hewlett-Packard, Houston Instruments, and Western Graphtec plotters included.

[IBM PC, 320K, MS Fortran v3.2+ or Lahey Computer Systems F77L, Tecmar's Graphics Master board, GMDEV driver v5.2+]

$160.00

**PDP - BV Engineering**

A Plotter Driver Program which makes multi-color scientific and financial graphs on pen plotters. Data may be entered manually or come from previously generated data files. Data files can originate from BASIC, FORTRAN, and PASCAL programs, word processors, text editors, etc. Data from different files may be plotted on the same graph. Menu-driven and interactive but also supports an auto-mode whereby PDP plots graphs without user intervention. Features include: Two Y axes with each being linear or logarithmic, auto scaled or user scaled. Draws up to 6 plots per graph. Built-in data editor.

[PC/MS-DOS, 256K] or [CP/M-80, 60K, Z-80]

$70.00, $80.00 for 8087 version

**PLOTPRO - BV Engineering**

A set of 4 linked Microsoft Basic programs which make scientific graphs on any 80 or 132 column printer. Creates linear, semi-log, and full log plots with 1 or 2 Y axes and will plot multiple plots on the same graph. Auto or forced scaling. Plots may be generated with the X axis perpendicular or parallel to the edge of the paper. This allows for long plots limited only by the length of the paper. Menu driven and interactive.

[PC/MS-DOS, 256K] or [CP/M-80, 56K, Z-80] or [TRSDOS, 48K]

$70.00, $105.00 w/ BASIC source code

**PCPLOT - BV Engineering**

A high resolution graphics program which makes pixel resolution screen and printer graphs. Creates linear, semi-log, full log, and financial plots with 1 or 2 Y axes. Plots up to 6 plots on the same graph. Creates templates of the physical appearance of any graph which can be saved to disk. Plotted points may be connected. Menu driven and interactive.

[PC/MS-DOS, 256K]

$70.00, $105.00 w/ BASIC source code

**SCI-GRAF - Microcomputer Systems Consultants**

A scientific graphics program capable of producing a wide variety of graphs on many dot matrix printers. Menu driven. Default values may be pre-set by user. Linear or logarithmic scales. Automatic or manual scaling. Capable of displaying two different vertical scales on the same graph. Plot up to 6 different variables on a single graph, distinguished by up to 8 different point-plotting symbols and 7 different colors. (Color graphs require an Epson JX-80 printer.) Can automatically place a legend at bottom of graph. Save graphs to disk. Overlay graphs on top of another. Individual points or curves may be labeled with proportionally-spaced text in 3 different sizes.

(Optional feature) FONTEDIT is a full-screen editor which allows the user to create custom characters or symbols for use with SCI-GRAF. Symbols in all 3 of the text sizes supported by SCI-GRAF may be edited and provides full support for proportional spacing.

[IBM PC or compatible, 256K, PC/MS-DOS v2.0+, EPSON or IBM dot-matrix printer or compatible. (FONTEDIT requires an IBM compatible keyboard and IBM compatible 320 x 200 pixel on-screen graphics)]

$99.00, $129.00 w/ FONTEDIT

**GRAF 3.0 - Microcomputer Systems Consultants**

A general purpose graphics program, capable of producing a wide variety of charts and graphs on many dot-matrix printers. Bar charts, pie charts, and scatter plots. Menu driven. Automatic scaling, labeling, and legend creation. Linear scales only. Plot and group up to 6 different variables on a single graph, distinguished by up to 14 different fill-in patterns and 8 different point-plotting symbols. Save graphs to disk. Overlay graphs one on top of another. Data files are supported or data may by entered from the keyboard.

[IBM PC or compatible, 192K, PC/MS-DOS v2.0+] or [Z80 system with CP/M v2.2+, 64K] Printers: Epson or compatible (MX must have GRAFTRAX) or C. Itoh ProWriter or compatible.

$49.00 for CP/M, $69.00 for IBM, $89.00 for 8087 version

**GENERIC CADD - Generic Software, Inc.**

Automatic line drawing. Two letter commands , plus on-screen menu. Absolute/relative coordinate input/display. User defined video and digitizer menus. User defined fonts. Rubber banding. Component libraries. Define function keys. Million to 1 zoom. Measure length, angle, area. Snap to grid intersection, nearest point, or user-set tolerance. User defined fonts.

[IBM PC or compatible, 256K, 2 360K floppy drives, or 1 floppy and 1 hard, graphics capability]

$95.00

**DOTPLOT - Generic Software, Inc.**

Changes the vectors (lines) in GENERIC CADD into dots for the printer (rasterizing). Can resolve a line within 1/200th of an inch in the high resolution mode. The plots may be 13 inches wide (with a 15 inch carriage). You can select paper width and height. Determine plot scale and origin. Rotate your drawing 90 degrees. You may preview before you plot. All truly Epson and IBM compatible printers are supported plus others.

[Same as GENERIC CADD]

$24.00

**AUTO-CONVERT - Generic Software, Inc.**

A translator for GENERIC CADD. Allows you to bring in drawings or symbol sets from AUTOCAD (from Autodesk Inc.) and convert them into GENERIC CADD drawings. You can also convert GENERIC CADD drawings into AUTOCAD drawings.

[Same as GENERIC CADD]

$24.00

**PRODESIGN II - American Small Business Computers**

A CAD system which supports most printers and plotters available for the IBM PC, as well as a wide variety of graphics adapters, digitizers, and mouse devices. Plotter quality output from ordinary dot matrix printers. Move, copy, save, or erase any part of your drawing. Undo command. Draw straight lines, curves, circles, ovals, and arcs. Coordinates may be specified in drawing lines. Display text at any size and angle. Multiple character sets. Zoom and rotate whole drawing or sections of drawing independently. No loss of resolution with zoom. You can set your own units of measurement. Auto-Dimensioning. Snap grid-lock. Unlimited number of overlays. 16 color support. Change aspect ratios and create mirror images. User created symbol libraries. Fill any irregularly shaped area. Merge text files into drawing.

[IBM PC or compatible, 512K, graphics capability]

$250.00

**XFER - BV Engineering**

A program which uses short cicuit transfer impedance functions around an operational amplifier to compute circuit element values and circuit configurations which will synthesize a desired transfer function. Conversely, given a circuit configuration and element values, XFER computes the transfer function. Component tolerances may be entered so that Magnitude and Phase sensitivity as well as Monte-Carlo analysis can be performed. Menu driven, interactive. A free format input processor accepts common engineering abbreviations. (K for 1000, M for Mega, m for milli, etc.)

[IBM PC or compatible, 256K]

$70.00

**COMCALC - BV Engineering**

A menu driven, spreadsheet-like CAD tool for the radio communications system designer or user. Components of a system such as transmitter power, frequency, transmission path attenuation, receiver noise figure, etc. are entered and the system's performance characteristics are displayed. Displays a communications "budget" which tells the designer how much signal energy margin exists. Also contains a specialized calculator to solve many common communications problems such as: line of sight distances, parabolic antenna design, and units conversion. Data may be saved on disk.

[PC/MS-DOS, 256K] or [CP/M-80, 60K, Z-80]

$70.00, $80.00 for 8087 version, $105.00 w/ Turbo Pascal source code

**ACNAP - BV Egineering**

An AC Network Analysis Program. A general purpose electronic circuit analysis program which analyzes passive and active circuits consisting of resistors, capacitors, inductors, transistors, op amps, FET's, etc. Menu driven and interactive. Circuit information can be saved on disk. Analyze circuits up to 200 branches and 30 nodes in one pass. Larger circuits may be analyzed by "chaining" subcircuits. Computes the complex input impedance of a circuit and the complex output impedance of any node. Sensitivity analysis. Automatic noise equivalent bandwidth calculations. A 25 node version is available, which is only 50K long, for 60K CP/M systems. Many Apple CP/M systems fall into this category. Be sure to order the "25 node" version if you only have enough free memory to run a 50K program.

[PC/MS-DOS, 256K] or [CP/M-80, 62K, Z-80] or [TRSDOS, 48K]

$70.00, $80.00 for 8087 version, $125.00 w/ FORTRAN IV source code

**DCNAP - BV Engineering**

DC Network analysis program. A general purpose DC circuit analysis program which analyzes passive and active DC circuits consisting of resistors, voltage sources, independent and dependent current sources, op amps, transistors, etc. Menu driven and interactive. Circuit data can be saved to disk. A free format input processor accepts common engineering abbreviations. (K for 1000, M for Mega, m for milli, etc.) Calculates the effect on circuit node voltages which results from individual components varying within the tolerances you specify.

[PC/MS-DOS, 256K] or [CP/M-80, 56K, Z-80]

$70.00, $80.00 for 8087 version, $120.00 w/ FORTRAN IV source code

**SPP - BV Engineering**

A general purpose Signal Processing Program containing an integrated set of routines which analyze linear and non-linear systems and circuits and their effects on user generated or user specified time domain waveforms. The basis for much of SPP is a 512 point Fast Fourier Transform and its inverse. Linear processing is conducted in the frequency domain and non-linear processing in the time domain. Will take a system described by a LaPlace transfer function and compute the time domain response to any user generated input waveform. Menu driven, program prompted, and interactive. Supprts manual data entry, data files, and internal signal generation.

[PC/MS-DOS, 256K] or [CP/M-80, 56K, Z-80] or [TRSDOS, 48K]

$70.00, $80.00 for 8087 version

**LOCIPRO - BV Engineering**

A general purpose root locus program which provides control system and electronic engineers a simple means to determine closed loop system stability from open loop transfer functions. Solves the locus of roots for systems up to 26th order and 10 loop elements. Output data may be vectored to the display, printer, or ASCII data files. Output files are compatible with SPP, PDP, PLOTPRO, and PCPLOT.

[PC/MS-DOS, 256K] or [CP/M-80,56K, Z-80] or [TRSDOS, 48K]

$70.00, $80.00 for 8087 version

**ACTFIL - BV Engineering**

Active filter design/realization. An active transform synthesis and filter realization program which provides detailed design parameters and transfer function coefficients given the desired filter characteristics. Provides solutions for low pass, high pass, band pass, and band reject filters. Butterworth and Chebychev response are selectable and a choice of realizable circuits may be made by the user. You can design complex multiple stage filters and simple filter configurations. Computes both the transfer functions and component values for each realization.

[PC/MS-DOS, 256K] or [CP/M-80, 60K, Z-80]

$70.00, $80.00 for 8087 version

**STAP - BV Engineering**

Static Thermal Analysis Program. A general purpose 2 dimensional steady state heat transfer program with particular emphasis on the analysis of heat sinks in the electronic packaging field. After entering the heat sink properties and heat input characteristics, the steady state temperatures at all nodes are calculated, displayed and saved to disk. Provides for 40x40 nodes (1600 nodes) under MS-DOS and 20x20 (400 nodes) under CP/M-80. Heatsinks up to 99.99 inches on a side may be specified. Allows for many defaults which are common to electrical engineering. Each of the 4 edges of the heat sink may be held at (different) constant temperatures if desired, and a convection coefficient for the top of the heatsink may be optionally supplied.

[PC/MS-DOS, 256K] or [CP/M-80, 60K, Z-80]

$70.00, $105.00 w/ BASIC source code

**LOGICWORKS - Capilano Computing Systems, Ltd.**

Create, test, and document digital circuits. All functions are mouse controlled. Fully interactive operation. Any circuit, input or device parameter change immediately affects displayed circuit activity. Drawing size is not limited by the screen. Maximum drawing size is 38 feet by 38 feet. Circuit or timing windows may be resized or removed from the screen completely. Circuit or timing diagrams can be written as bitmap files in one page segments. Full simulation capability. Circuit output may be displayed in the form of timing diagrams or on simulated output devices. Uses five signal states (low, high, don't know, conflict, high impedance) to correctly simulate circuits with design errors such as unconnected inputs or conflicting outputs. Device delay time may be altered for individual components. Timing display has adjustable time per division and graticle reference line placement. User specified complex timing sequence input. Supports PLA's with up to 32 inputs and 16 outputs. Supports PROM's with up to 12 inputs and 8 outputs, specified as truth tables. Maximum capacity is about 100 devices, dictated mostly by response time.

[Macintosh 512] or [Macintosh Plus] or [HFS] or [Commodore Amiga 512]

$155.00 for Macintosh, $195.00 for Amiga

**LOGIMAC - Capilano Computing Systems, Ltd.**

A lower cost, lower featured version of LOGICWORKS. Does not support PLA's or PROM's. Implements the following logic devices: Combinatorial Inverter, AND, NAND, OR, NOR, XOR, open-collector and three-state buffers, pullup resistor, multiplexer, decoder, buffer, adder, comparator. Up to 8 inputs supported on gates. Sequential D and JK flip-flops, 4-bit counter, 4-bit shift register, clock generator with adjustable period and duty cycle. Input/Output Switch, probe, hex keyboard, hex display. Maximum capacity is approximately 30 devices on a 128K machine, dictated primarily by response time.

[Macintosh 128K or 512K]

$75.00

**HANDBOOK PLUS - Cathedral Software**

Instant access to unit conversions, physical constants, periodic table, and a scientific calculator. Runs as a stand-alone or over your currently executing application. When installed as a RAM resident utilty, it can read from the screen to bring in data directly, without rekeying. Over 120 common units are supported in 24 categories with 12 prefixes (kilo, mega, ...) available. Physical constants includes: speed of light, Boltzmann, Planck, and Stefan-Boltzmann constants, the universal gas constant, standard volume, etc. Periodic table is available sorted alphabetically or by atomic number, as well as displayed graphically. The scientific calculator uses Reverse Polish notation, has a visible 7 register stack and a displayable 10 register supplemental memory.

[IBM PC or compatible, 95K, PC/MS-DOS v2.0+]

$35.00

**P.C. PLANETARIUM - Light Software**

Draws a sky map for any point on the earth, for any moment in the past, present, or future. The map includes stars of magnitude 4.5 and brighter, the sun, moon, planets out to Saturn, and Halley's Comet. Highlight any constellation. Identify and find the coordinates of any object. Included in the calculations are precession, proper motion, nutation, and aberration. The BASIC source code is available for an extra charge.

[IBM PC or compatible, 128K, IBM DOS v2.0+, BASIC, graphics capability]

$42.00, $67.00 w/BASIC source code

**THE OBSERVATORY - Lightspeed Software**

A simulation of the sky. Graphically display stars and planets. Highlight constellations. View the sky from any place on Earth, and for any time including: solar eclipses, Jupiter's satellites, solar transits by Mercury and Venus. Magnification feature with a 1 to 512 range.

[Apple II+, IIe, or IIc, 64K]

$49.00

**STARCHART - Visionary Software**

A graphics program affording the user a variable date star atlas. Descriptive shapes accurately indicate object type, magnitude, and location for the specified epoch. Location and field of view are user controllable. Retrieve specific information on any selected object displayed on the screen. Also displays data in tabular form including: object name, right ascension and declination for the specified epoch, magnitude or type, and spectra.

[IBM PC or compatible, 128K, PC/MS-DOS 2.1+, graphics capability] or [Apple II,II+,IIe,IIc or compatible, 64K, Pro DOS 3.3]

$45.00

**ASTROCALC - Zephyr Services**

Calculates the following for the sun, moon, and all planets: right ascension and declination, altitude and azimuth, ecliptic latitude and longitude, angular size, phase, elongation from sun, orbital elements, rise and set times, brightness, distance from the sun and earth. Also finds: local standard time, Greenwich mean time, local sidereal time, greenwich sidereal time, equation of time, and twilight start/end times.

[IBM PC/XT/JR] or [Apple II+/IIe/IIc] or [Commodore 64/128]

$29.00

**ASTROBASE - Zephyr Services**

A database containing 300 stars and deep sky objects. User can add up to 700 more objects (up to 400 for Apple). Can do searches for types of objects and display or print the lists. Displays those objects which are visible for any day and time.

[IBM PC/XT/JR] or [Apple II+/IIe/IIc]

$29.00

**ASTRO AID - Zephyr Services**

A menu selectable program with 44 astronomical functions. Coordinate conversions: equatorial, ecliptic, galactic, alt-az. Time conversions: Julian Day, Gregorian, sidereal, UT, ET, solar. Basic conversions: distances, temperature, energy, etc. Precession, nutation, aberration, parallax, refraction. Kepler's/Newton's laws, relativity, trigonometry. Telescope design: resolution, coma, diagonal, fields, etc. Equinox, solstice, Polaris, transits, Jupiter's moons. Solar system data: sun, moon, planets, satellites. Constellations: names, areas, primary stars, lore. Stars: nearest, brightest, positions, names, spectra.

[IBM PC/XT/JR] or [Apple II+/IIe/IIc] or [Commodore 64/128]

$29.00

**GRAFTRAK II - Silicon Solutions**

A satellite tracking program. Provides realtime graphic display of a flat projection map which moves under the selected satellite/sun/moon/star coverage circle and updates once per second. Three-dimensional maps show the earth as seen from the satellite. Information produced includes: satellite height, range, echo delay, doppler shift and drift rate, elevation and azimuth, all for a given observer, and also the satellite subpoint in latitude and longitude. Interactive clock adjustment. Realtime sidereal and Julian Date display. Includes an editor program to construct and modify satellite/observer database files. Designed with the Amateur Radio operator in mind but useful to others as well.

[IBM PC or compatible, 256K (512K recommended), DOS v2.0+, IBM Color Graphics Adapter or compatible, 8087 coprocessor, 2 360K floppy drives or 1 360K floppy and one hard drive]

$114.00, $189.00 w/ SILICON EPHEMERIS, $5.00 for demo of both

**SILICON EPHEMERIS - Silicon Solutions**

An integrated satellite/EME software package. Satellite database files are 100% compatible with GRAFTRAK II. Provides tabular data output to the screen, printer, or disk file for the following operating modes: 1 observer to 16 satellites, 16 observers to 1 satellite, schedule for 1 observer to 1 satellite, window between 2 observers and 1 satellite, rise/set times for 1 satellite, time-ordered rise/set times for 16 satellites, almanac for sun/moon, 16 observers to sun/moon, schedule for 1 observer to moon, window between two observers and moon, schedule for one observer to sun. Includes an editor program to construct and modify satellite/observer database files. Designed with the Amateur Radio operator in mind but useful to others as well.

[IBM PC or compatible, 256K, DOS v2.0+, IBM Monochrome or IBM Color Graphics Adapter or compatible, 1 360K floppy drive]

$114.00, $189.00 w/ GRAFTRAK II, $5.00 for demo of both

**MATRIX MAGIC - BV Engineering**

An interactive, menu driven matrix manipulation and test program. Matrices up to 20x20 can be handled. Features both standard and Reverse Polish operations. The Matrix Operations menu consists of: Create, Edit, Add, Adjoint, Cofactor, Cramer's Rule, Determinant, Eigenvalues, Eigenvectors, Inverse, Product, Scalar multiplication, Subtraction, Trace, Transpose, and Spur. The Matrix Test menu allows you to determine if a matrix is: Commutative, Diagonal, Hermitian, Isometric, Jordan, Canonical, Lower or Upper Triangular, Nonsingular, Orthogoonal, Unitary, Scalar, Self Adjoint, Self Inverse, Skew Hermitian, Skew Symmetric, Strictly Lower or Strictly Upper Triangular, Symmetric, and Tridiagonal. You treat matrices just like numbers are treated on an HP-41 calculator except you perform operations on an entire matrix rather than just a number.

[PC/MS-DOS, 256K]

$70.00, $80.00 for 8087 version

**NCSS - Number Cruncher Statistical Systems**

A statistical analysis system offering a wide range of procedures. Uses menus, prompts, and fill in the blank panels. Reports may be saved into ASCII files. Multiple regression features include: stepwise regression, least absolute deviation regression, predicted-values with confidence intervals, multicolinearity and residuals diagnostics, standard errors, standardized coefficients, adjusted R-squared, sequential R-squared, robust and weighted regression, regression through the origin, Durbin- Watson statistic, double precision calculations, regular and parital correlations, analysis of variance table. Four major graphical procedures: low/high resolution scatter plots, histograms, and box plots. T-test features: paired T-test, unpaired T-test, F-test for equality of variances, unequal sample sizes, probability levels, and nonparametric analogs. Also: analysis of covariance, Kendall's tau, Spearman's rho, and other features.

[IBM PC or compatible, 256K, PC/MS-DOS v2.0+, two floppies or hard disk]

$69.00

**SIGSTAT - Significant Statistics**

Basic data description, graphs, histograms, Pareto charts, scatter plots, and exploratory data analysis. Cross-tabulation, log-linear modeling, and contingency table analysis. Chi-square, goodness of fit, nonparametric analysis of variance, Wald-Wolfowitz runs. Multiple, ridge and best subset regressions; curve fitting, residuals, and reliability. Stepwise, periodic and harmonic, polynomial, asymptotic and logistic, nonlinear least squares, and probit regressions. Univariate and multivariate analysis of variance and covariance, general linear models, multiple comparisons, and t-tests. Multi-group and stepwise discriminant, factor, and canonical correlation analysis. Multidimensional scaling, preference, and conjoint analysis. Cluster analysis, including hierarchical, Howard-Harris, K-means, nearest and furthest neighbor, weighted-pair, and Ward's method. Box-Jenkins and nine other time series methods, smoothing, and power spectral analysis. Linear programming and statistical quality control; X-bar, R,P,U and C control charts.

[IBM PC or compatible, 256K]

$450.00

**MATRIX CALCULATOR - SoftTech Inc.**

Solves a variety of mathematical problems from calculator level to differential equations. Performs linear programming: revised simplex, sensitivity analysis, and parametric programming. Creation, editing, printing, and saving of matrices with built in MATRIX EDITOR. Solve a system of linear equations by pivoted Gauss-Jordan elimination or triangular decomposition. Solve system of nonlinear equations by Newton-Raphson method. Calculate Jacobian and Hessian of a matrix. Find eigenvalues, eigenvectors, and determinant of a matrix. Do more than 60 matrix manipulations and statistical calculations including multi-linear regression and polynomial regression. Trapezoidal and Simpson integration. Romberg integration with bounded integration interval. Gauss-Legendre quadrature which integrates to infinity. Solve a system of Ordinary Differential Equations (initial value problem). Find a maximum of a function by golden section search.

[IBM PC or compatible, 192K, PC/MS-DOS]

$59.00, $59.00 for source code (may only be purchased with program), $120.00 for MATRIX CALCULATOR w/source code + SPARSEPACK + SPARSEPACK UTILITIES + RESICALC

**SPARSEPACK - SoftTech Inc.**

A collection of Turbo Pascal source codes for procedures and functions which make handling sparse matrices user transparent while managing memory extremely efficiently. It also enables you to overcome the 64K bytes barrier and use 640K. Includes: matrix browsing/editing/printing (BROWSE), conversion between 8088 and 8087 formats (FILTERS), procedures for matrix manipulation and various systems of equation solvers.

(Optional feature) SPARSEPACK UTILITIES contains Turbo Pascal source codes for BROWSE and FILTERS allowing you to have portable modules which can: list directory and obtain information on files, print matrices, make your own matrix editor or spreadsheet, convert to and from Turbo Pascal 8088 and 8087 numeric formats, and evaluate a formula string using the supplied expression parser.

[IBM PC or compatible, 128K, PC/MS-DOS]

$49.00, $59.00 w/ SPARSEPACK UTILITIES, $120.00 for SPARSEPACK + SPARSEPACK UTILITIES + MATRIX CALCULATOR w/source code + RESICALC

**STATFAST 2 - StatSoft**

A stand-alone statistical package. Menu driven. Mean, standard deviation, kurtosis, skewness, t-tests for independent and correlated samples, crosstabulation, correlation, and comparison of distributions. Multiple regression with up to 50 predictors in one equation. Durbin Watson statistic and autocorrelation of residuals. General analysis of variance and covariance. Produce bargraphs and scatter plots of data. May be modified with screen editor (included) or with MacWrite and MacPaint.

[Macintosh, 128K or 512K]

$100.00

**STATS 2 - StatSoft**

Similar to STATFAST 2 but was specifically designed to enable users to read data files created with LOTUS 1-2-3 and other spreadsheet programs. May also be used as a stand-alone program.

[IBM PC or compatible, 256K, 2 disk drives]

$130.00

**APP STAT - StatSoft**

Similar to STATFAST 2. Multiple regression with up to 15 predictors in one equation.

[Apple IIc/IIe/II+ or compatibles, 48K, 1 disk drive, 80 column display]

$95.00

**COMM STAT - StatSoft**

Similar to APP STAT.

[Commodore C-64 (or 128), 1 disk drive]

$95.00

**MATHPAK 87 - Precision Plus Software**

A library of over 130 routines for common mathematical operations. The routines are coded in assembler and can run up to 20 times faster than equivalent high level language routines. Vector and vector-scalar procedures. Vector and vector-scalar "skip" procedures (these procedures can operate on non-consecutive elements). Complex vector and vector scalar procedures. Simple matrix and vector-matrix procedures. LU decomposition and backsolving for real and complex matrices. Linear equations: Gaussian elimination, Gauss-Seidel, solution of tri-diagonal systems. Statistical and data fitting procedures. Fourier transforms and convolution. Spectral analysis, numerical integration, and differential equations.

[IBM PC/XT/AT or compatible, 8087/80287 math coprocessor, Turbo Pascal or Microsoft/IBM Pascal or Microsoft/IBM Fortran or IBM Professional Fortran]

$69.00 for Turbo Pascal, $109.00 for others

**MATRIX 100 - Stanford Business Software, Inc.**

Matrix routines callable from your program. Add, subtract, multiply, and invert matrices. Solve a system of linear equations, perform multiple linear regression, factor a matrix into LU form, and find QR factors.

[IBM PC, 128K, IBM BASICA or IBM BASIC compiler or R/M FORTRAN]

$80.00 for BASIC, $125.00 w/ 8087 support, $250.00 for BASIC compiler (includes the 2 above versions), $175.00 for FORTRAN

**ELF - The Winchendon Group, Inc.**

A statistical and data base management program. ANOVA one and two-way. Correlations in matrix format. Crosstabs up to 3 dimensions. Discriminant analysis with user directed stepwise inclusion and removal. Durbin's autocorrelated regression (not availible for Apple) with all the statistics of the stepwise regression program. Factor analysis using principle components or principle factors. Frequencies. Histograms. Scattergram and simple regression uses the Apple's high resolution graphics. Significance of t, F, Chi Square and normal statistics. Simple statistics including: mean, standard deviation, variance, standard error, minimum, range, sum, skewness, kurtosis, and number of observations. Stepwise regression with user directed multiple stepwise regression, and plots actuals, predicteds, and errors. Database management allows you to create, correct, add, or delete observations. Transform data by using simple commands and refer to variables by name. Print a data base. Convert to or from DIF files used by VisiCalc, etc. Also reads and writes fixed and free format files.

[IBM, 192K, PC DOS 1.1+] or [Apple, 48K, DOS 3.3] or [CP/M, 51K, 2.2+]

$200.00 for Apple or CP/M, $300.00 for IBM

**MINI/ELF - The Winchendon Group, Inc.**

Identical to ELF, but: 1) Is limited to a database of 5 variables, though still allowing an unlimited number of observations. 2) Does not perform conversion of data from other formats, Durbin's autocorrelated regression, factor and discriminant analysis.

[Requirements same as ELF]

$50.00

**12 BIT 16 CHANNEL A/D - Applied Engineering**

Nine software programmable full scale ranges (all +/-): 10V, 5V, 2.5V, 1.0V, 500mV, 250mV, 100mV, 50mV, or 25mV. Any of the 16 channels can have any range at any time. Conversion in 25 microseconds. Analog input resistance greater than 1 MegaOhm. User connector has +/- 12V. Works in any slot including slot 3 in the IIe. Input filtering for all 16 channels can filter out any frequency over a value you select, from 2Hz to 100,000 KHz. Includes several sample programs on disk for BASIC and machine code including source code.

[Apple IIe/II+]

$319.00

**A/D + D/A - Applied Engineering**

Single PC card. A/D specifications: 8 bit, 8 channel, 78 microsecond conversion, 50K ohm analog input resistance. User programmable input ranges are (in volts): 0 to 10, 0 to 5, −5 to +5, −2.5 to +2.5, −5 to 0, and −10 to 0. D/A specifications: 8 bit, 8 channel, 3 microsecond conversion, can drive 5 mA of output current. User programmable output ranges are 0 to 5 volts and 0 to 10 volts.

[Apple IIe/II+]

$199.00

**I/O 32 - Applied Engineering**

Provides 4, 8 bit programmable I/O ports. Any of the 4 ports can be programmed as an input or an output port. All lines are TTL compatible. Inputs can be anything from high speed logic to simple switches. Programming is made easy by onboard firmware. Manual includes many programs for inputs and outputs.

[Apple IIe/II+]

$89.00

**TEKCALC - BV Engineering**

A programmable scientific calculator with built-in graphics, statistics, user extendable functions, and data table window. Trig, log, exponential, special, and user-definable functions. Formulas, computations, and data may be saved on disk. Mathematical functions, data files, and data tables may be plotted on the screen in bit-mapped or character graphics. Labels, titles, and legends may be placed anywhere on the graph with full-screen editing. Both auto and forced scaling are supported. Linear regression and standard deviation calculations. Values are calculated to 80 bit accuracy with or without an 8087.

[IBM PC or compatible, 256K, Color Graphics Adaptor or compatible]

$70.00, $80.00 for 8087 version

**RESICALC - SoftTech Inc.**

A RAM resident programmable scientific calculator. Functions include: trig, hyperbolic, error and inverse error, gamma, and others. User can program functions using local and global variables and matrices. Input and output in hexadecimal and decimal notations. Matrix can be browsed and edited in spreadsheet format.

[IBM PC or compatible, 80K, PC/MS-DOS]

$25.00, $120.00 for RESICALC + MATRIX CALCULATOR w/source code + SPARSEPACK + SPARSEPACK UTILITIES

**CHIWRITER - Horstmann Software Design**

A word processor supporting mathematical symbols (such as integral, square root, infinity, etc.) and the Greek alphabet. Ten fonts (almost 1000 characters) and 250 levels of super- and subscripts per line are supported. Can read files created by Wordstar and other word processors. Other fonts included are: script, Gothic, bold, and italic.

[IBM PC or compatible, 256K, IBM or Hercules graphics card, Epson or compatible printer]

$65.00, add $15.00 for Toshiba 1340 support, add $15.00 for Hercules monochrome board support

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Specify all pertinent information regarding the system on which the product will be used. For example, if buying a plotter driver with on-screen preview, then not only specify the computer and operating system but also the plotter and video card which will be used.

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