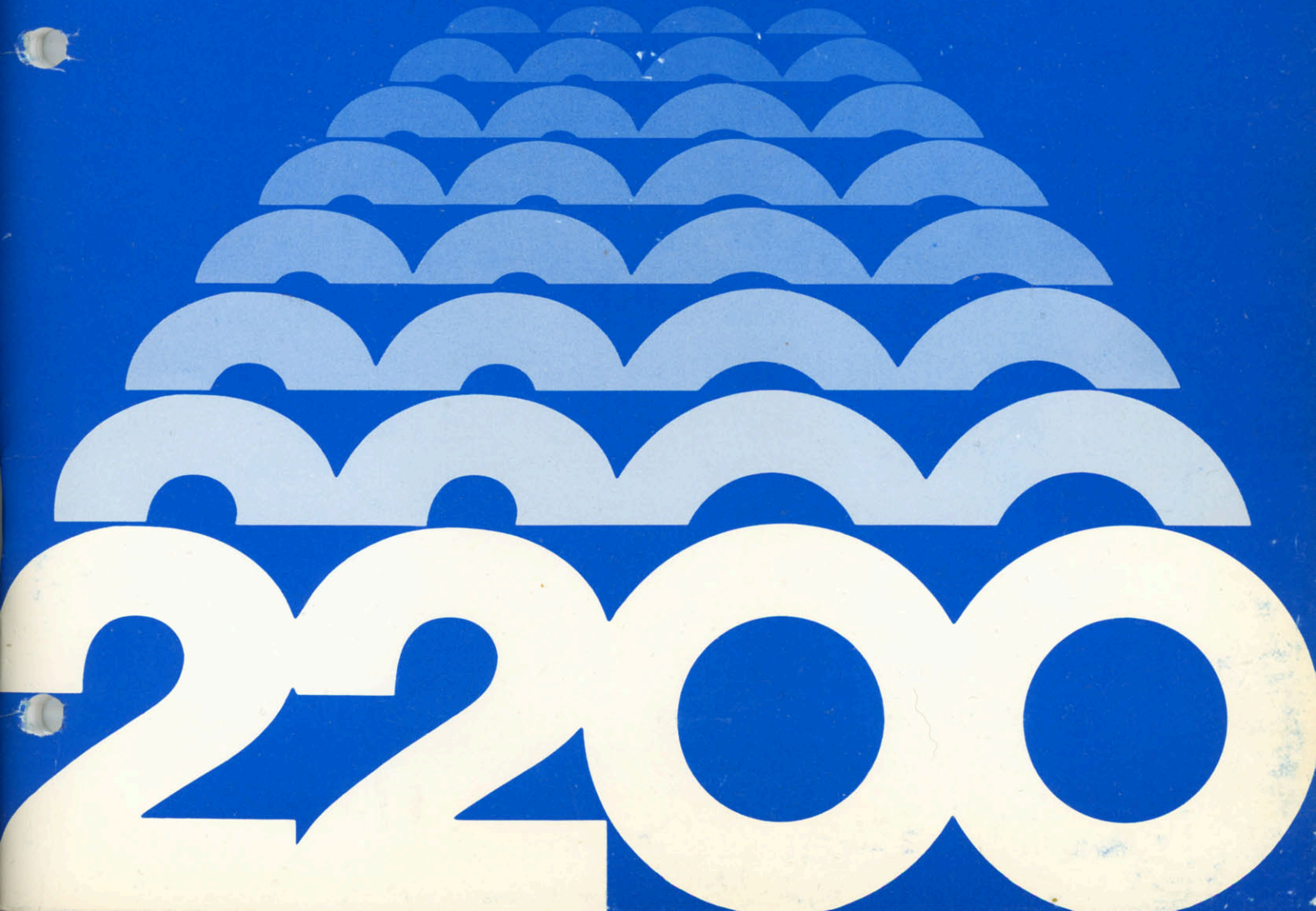
WANG

Software Catalog



2200 Software Catalog

1st Edition — December, 1980

700-6517

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PREFACE

This catalog provides information to the field about software currently available from Wang to run on the 2200 Series product line.

The first section presents general information about the 2200 hardware, and introductory information about the format and contents of the catalog.

The remaining sections contain abstracts of each software package. Application, statistical/scientific, and utility software is included.

Ordering information is provided for each package.

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GENERAL INFORMATION

INTRODUCTION

A wide variety of business applications, statistical packages, and utilities are available from Wang Laboratories, Inc., to run on the 2200 Series product line. This catalog provides the following information about each of these software packages.

- Software package title
- Abstract of the package, including its functions and features
- Support status
- Type(s) of hardware needed
- Computer language in which the programs are written
- Ordering information
- Package number used for ordering

HARDWARE DESCRIPTIONS

The 2200 Series product line is currently comprised of the VP, MVP, SVP, and LVP. These computers are designed to be interactive, CRT-oriented systems.

Although the T and PCS-II are no longer available as products, the software will continue to be available and supported.

2200VP

The 2200VP is a single-user computer system which provides the speed and processing power of larger computer systems.

The Central Processing Unit (CPU) contains 32K bytes of user memory, expandable to 64K; more than 48K of control memory; and nine I/O slots.

The standard VP comprises a CPU, an enhanced BASIC (BASIC-2) interpreter, CRT display terminal and keyboard, and a wide range of available peripherals.

2200MVP

The MVP is a multi-user business computer which offers the outstanding performance of the VP processor and the capability of supporting up to twelve user terminals.

The minimum configuration of a single terminal, 32K memory, and 750K of floppy disk storage can be expanded to twelve terminals, 256K memory, and over 480 megabytes of disk storage.

MVP features include a BASIC-2 interpreter, telecommunications capabilities, 2280 disk multiplexer, and a sophisticated microprocessor-controlled terminal with underlining, reverse video, box graphics, and screen dump to printer.

2200LVP

The 2200LVP is a high-performance, economical computer which can support up to four users simultaneously. Based upon the MVP, the 2200LVP offers state-of-the-art disk storage, telecommunications capabilities, and an extremely low overhead operating system.

The LVP supports 32K to 128K bytes of user memory and uses the BASIC-2 interpreter.

2200SVP

The 2200SVP is a compact, single-user, high-performance business computer designed to meet the processing requirements of first-time users and large corporations.

The entry-level system is available with 32K bytes of user memory (expandable to 64K), terminal, printer, and telecommunications.

The SVP, also programmable in BASIC-2, contains a maximum disk storage of 5 megabytes.

SUPPORT STATUS DESCRIPTIONS

Software packages in this catalog are defined as either supported or unsupported.

Supported

Users of these software packages will receive assistance from Wang for any questions or problems.

Unsupported

These software packages, often developed for internal use only, are not intended as products. Interested users can purchase these packages; however, in no event will Wang Laboratories, Inc., be liable for any problems that occur.

ORDERING INFORMATION

Software Packages

Separate ordering instructions are included for each package, since procedures may vary. Most packages, however, are available through the Wang Software Support Center.

Operating System

All 2200 customers are placed on a mailing list to receive written notification of updates to the operating system software. Cards will be sent describing the software changes.

All written, telephone, and telex requests for updated operating systems should be directed to the Wang Software Support Center.

PACKAGE NUMBERING SCHEME

Each software package is identified by a package number to be used for ordering. The package numbering scheme is as follows.

Package Number: 195-XXXX-Y

195 — "software"
XXXX — chronologically assigned number
Y = 3 — floppy diskette
Y = 4 — hard disk on diskette
Y = 5 — dual-sided double density 8" floppy
Y = 6 — hard disk
Y = 8 — minidiskette (single density)

2200 APPLICATIONS

General Business System (GBS) Release 2

General Business System (GBS) is a complete general accounting system, with a flexible design that can be tailored to satisfy the needs of any small- to medium-sized business organization.

The complete GBS package consists of five applications; three can be purchased separately; two are dependent upon other applications.

Accounts Receivable, Invoicing — This application is designed as a stand-alone system, but is recommended for use with the dependent Inventory, Order Entry application. The Accounts Receivable system processes invoices for balance forward and open item customers. As payments are received, they are posted for distribution to one or more invoices (open item or balance forward). Month-end procedures include deleting fully paid invoices and producing various reports such as sales analyses and credit reports.

Order Entry, Inventory Control — This application is dependent upon the Accounts Receivable, Invoicing system. Inventory, Order Entry receives customer orders, allocates items according to the Inventory file, and prints internal shipping papers. The system can also create backorders, confirm orders, and print inventory reports.

Accounts Payable, General Ledger (AP, GL) — This application is designed as a stand-alone system. Accounts Payable programs journalize vendor transactions, store open items, and catalog distribution amounts to interface with the GL system. A Cash Requirements report and checks can be printed.

GL programs post journal entries and print financial reports, including trial balances, balance sheets, and profit and loss statements. A special feature of the module is automatic journal entry posting.

Payroll — Payroll is a stand-alone application which performs payroll operations for hourly, hourly-exempt, and salaried employees.

The system supports up to 15 earning and deduction types per employee, 10 tax types, and 8 standard pay cycles. Transactions can be processed between cycles to adjust totals when necessary.

GBS Payroll offers cash, check, and direct payment methods.

Bill of Material — Bill of Material is a dependent application designed to interface with Inventory in performing a series of material handling functions, including the production of implosion and explosion reports. Its Product Structure file contains a list of components for each assembly in the manufacturing system. This file can accommodate up to 31 levels of product structure. This module is restricted to the MVP/LVP.

Support Status: Supported
Hardware: T/VP/MVP/LVP/SVP
Language: BASIC/BASIC-2

Ordering Information: GBS T/VP and GBS/Release 2 packages are available to Wang-licensed vendors and end users. A signed Uniform License Agreement (#51079) is required. End users must also sign a statement releasing Wang from successful implementation of the package.

Vendor orders are sent to the Manager of Vendor Support for verification of vendor status. All orders are then sent to the Wang Legal Department for approval. The packages are then shipped with the shipping date on the License Agreement. Billing information is sent to the Wang Supplies Division.

Package Numbers:

GBS T/VP Version

Hard Disk	Diskette	Hard Disk and Diskette
195-2028-3 (MOD I)	195-2025-3 (MOD I)	195-2055-3 (GBS for
195-2030-3 (MOD II)	195-2029-3 (MOD II)	Wholesale Distribution
195-2032-3 (MOD III)	195-2031-3 (MOD III)	
195-2062-3 (MOD IV)	195-2063-3 (MOD IV)	

GBS (VP,MVP,LVP,SVP) Release 2

Hard Disk Only

195-2107-3(5) (MODS I and II — MOD I can be licensed separately)
195-2108-3(5) (MOD III)
195-2109-3(5) (MOD IV)
195-2110-3(5) (MOD V)

KEY:
MOD I = Accounts Receivable, Invoicing
MOD II = Order Entry, Inventory Control
MOD III = Accounts Payable, General Ledger
MOD IV = Payroll
MOD V = Bill of Material

General Program Libraries

The three General Program Library software packages are Mathematics, Statistics/Engineering, and Finance/Utilities/Games.

Each library contains programs of varying complexity to provide a sample of the usefulness and versatility of the 2200 Series product line.

Programs are designed to display all output on the CRT. However, they may be adapted for printed output on any Wang printer.

Each library contains about 40 programs. Some of these programs are listed below.

Mathematics — Roots of a Quadratic, Simpson's Rule, Derivative, Matrix Inversion, Vector Analysis, Solution of Simultaneous Equations, Linear Programming, Angle Conversion, Plane Triangle Solution, Linear Interpolation, Prime Factorization of an Integer, Algebra of Complex Numbers, and Greatest Common Divisor.

Statistics/Engineering — Multiple Linear Regression, Correlation Matrix, Analysis of Variance-Latin Squares, Chi-Square Analysis, T-Test, Mann-Whitney Test, Negative Binomial Distribution, T-Value, Random Normal Deviates, Cross-Covariance of Time Series, System Reliability, Warping Stress Due to Temperature Differential, Oil Well Depletion, and Characteristic Generator Resistance and Source emf Voltage.

Finance/Utilities/Games — Bond Dollar Price, Number of Days Between Two Dates, Mortgage Payment, Annual Debt Payment, Effective Interest Rate, Investment Withdrawal, Sum from Periodic Investment, Depreciation Charge, Salvage Value, Average Growth Rate and Projected Sales, Artillery, Tic-Tac-Toe, Blackjack, and Percent Absorption to Concentration.

Support Status: Unsupported
Hardware: T/VP/MVP/SVP/LVP/PCS-II
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-0008-3(5)(8)

Inventory Management System

Wang's Inventory Management System is a management-oriented (versus control-oriented) inventory system.

Major functions of Inventory Management System include: providing accurate forecasts of sales demand; incorporating those forecasts into reordering recommendations; and generating sets of conditions that will ensure any desired level of service as economically as possible.

The system is designed with sufficient user-specified checks and balances to require little operator intervention.

Inventory Management System can be used in any supply-and-demand situation where demand is uncertain and exact predictions are not possible. The system must be used with an inventory-control system, such as Wang's General Business System (GBS).

The four major components of the system are the Profile Maintenance program, the Demand Simulator, the Reorder Simulator, and a set of four utility subroutines (Deseasonalized Demand Adjustment routine, Forecast routine, Reorder Recommendations routine, and Projection routine).

Maintain Profile Program — Enables the user to generate, maintain, and print profiles containing up to four calendar years of data.

Demand Simulator — Performs a tracking function in response to real or artificial sales data, and projects monthly demand, inventory, and purchase figures.

Reorder Simulator — A stand-alone utility which allows the user to evalute the effects of different values of the various control parameters upon the order quantities.

An interface to the GBS Inventory subsystem is provided with the Inventory Management System.

Support Status: Supported
Hardware: VP/MVP/SVP/LVP
Language: BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-2111-3(5)

Management Planning System (MPS)

The Management Planning System is designed to assist accountants and financial planners in the preparation of budgetary analyses and financial reports. The package consists of the following six programs.

Bar Chart — Provides bar charts with user-defined labels below each bar (along the X-axis) and an actual value on top of each bar. Charts can normally be up to 157 columns wide and 25 lines high.

Seasonal Analysis — Computes seasonal indices for a given time series, either with a trend (trend seasonal) or without a trend (horizontal seasonal).

Regression Analysis — Computes regression coefficients for weighted or unweighted (all weights equal to 1) data using the Least Squares method.

General Discounted Cash Flow — Computes present or future value, given the interest rate and number of periods for single, level, and different payments. Also, computes the effective interest rate.

Return on Investment — Calculates the return on investment by Dupont, Payback, Discounted Cash Flow, or Accounting Method.

Financial Planning — Generates row and column reports in which the user inputs data and combines it with a number of built-in or user-defined functions.

This package requires use of a printer. A plotter is optional.

Support Status: Supported
Hardware: T/VP/MVP/SVP/LVP/PCS-II
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-1024-(3)(4)(5)(8)

School Administration Reporting System (SARS)

School Administration Reporting System (SARS) is a computerized scheduling, grade-reporting, and attendance-reporting system.

SARS-Scheduler — This system can schedule an entire school overnight. A special 'dynamic' scheduler schedules individual students throughout the year in a matter of seconds.

Supporting annual, semester, trimester, and quarterly course plans, the scheduling system allows up to 24 course requests per student, 15 periods per day, 8 days per week, 500 courses, and 99 sections per course.

Other scheduling features include class and room conflict checks; and a variety of reports, including room and teacher schedules, available rooms lists, class rosters, and special teacher assignments. A mass change feature allows automatic adjustments when a course is dropped or added.

SARS-Attendance Reporting — This system provides fast daily attendance sheets showing absent, tardy, and dismissed students, as well as year-to-date and consecutive days absences. Daily phone number lists are included for attendance follow-up.

The system also prints monthly summaries of attendance statistics, homeroom lists, student directories, address labels, and high-absence and perfect-attendance lists.

SARS-Grade Reporting — This system provides a clear, easy-to-read report card with no pre-printed forms needed. Grades are automatically calculated based upon a weighted averaging of previous marks.

The system provides optional number-to-letter conversion on report cards with space for teacher comments.

Other grade-reporting features include grade verification lists, class rosters, and grade analysis reports.

Support Status: Supported
Hardware: T/VP/MVP/SVP/LVP
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Numbers: 195-2060-4(5) (Grades)
195-2059-4(5) (Attendance)
195-2094-4(5) (Scheduling)

Time and Record Keeping System (Time/Check)

The Time and Record Keeping System is a tool for management control, designed to be used by a service firm whose largest operating expense is its labor. The system assists the firm in increasing revenues and improving client service by performing the following functions.

- Client Billing
- Transaction Entry
- Transaction Editing
- Client and Employee File Maintenance
- Billable and Non-Billable Time Analysis
- Client Analysis
- Employee Productivity Analysis
- Costs Analysis
- Job Analysis
- Year-To-Date Updating

By providing detailed breakdowns of both client and employee billable and non-billable hours and costs, the system helps the firm effectively utilize its resources, and ensures that clients know exactly what services are being paid for.

The billing portion of the system can operate alone, or provide the billing output necessary to interface with an accounts receivable system.

Time and Record Keeping programs allow the operator to create, maintain, and inquire into employee and client files; create and modify a transactions file; print billing statements; and print a variety of reports including a time report, employees productivity analysis report, billable and non-billable time analysis report, client analysis report, and client billing report.

Support Status: Unsupported
Hardware: T/VP/MVP/LVP/SVP
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-2034-3(5)

2200 STATISTICAL/SCIENTIFIC PACKAGES

Analysis of Variance (ANOVA)

Analysis of Variance, a branch of statistics, is a group of techniques used to determine whether test observations subject to one factor, or two or more factors simultaneously, differ only by random error. Observations are repeated for each condition or combination of conditions of different factors.

The ANOVA system consists of eleven routines for eleven different types of experiments.

- 1-Way ANOVA (equal or unequal groups)
- 2-Way ANOVA (one observation/cell)
- 2-Way ANOVA (m observations/cell)
- 2-Way ANOVA (m observations/cell, m can be unequal)
- Latin Squares
- 3-Way ANOVA (m observations/cell)
- 3-Way ANOVA (m observations/cell, m can be unequal)
- 2-Factor ANOVA (equal or unequal cell frequency)
- 2-Factor ANOVA (with repeated measures on Factor B)
- 3-Factor ANOVA (equal or unequal cell frequency)
- 3-Factor ANOVA (with repeated measures on Factor C)

The first four routines can be used to compare different samples to determine if the differences between them are significant.

Two- and three-factor ANOVA routines can be used to analyze observations where several influencing conditions apply.

ANOVA is intended for professionals versed in statistics.

Support Status: Unsupported
Hardware: T/VP/MVP/LVP/SVP/PCS-II
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-1006-3(5)(8)

Analysis of Covariance

The Analysis of Covariance software package enables the researcher and clinician to obtain analysis of data rapidly and efficiently.

Analysis of Covariance is a method of analytically adjusting data when the factor or observation of interest is affected by sources of variation other than the treatment under consideration. It uses a combination of the concepts of regression and analysis of variance.

This package deals with linear covariance, and includes analytic procedures for the following models.

- One-Way Analysis with three or fewer covariates
- Randomized Complete Block with three or fewer covariates
- Two-Factor Factorial Experiment with three or fewer covariates
- Two-Factor Factorial Experiment with repeated measures on one factor and three or fewer covariates
- Latin Square Design with three or fewer covariates

Analysis of Covariance is used to increase precision, to assist in the interpretation of the nature of treatment effects, to adjust treatment means of the dependent variable to compensate for the lack of a common independent variable, and to estimate missing observations in data.

This package is intended for the professional researcher, versed in statistics.

Support Status: Unsupported
Hardware: T/VP/MVP/SVP/LVP/PCS-II
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-1031-3(5)(8)

Bioassay and Probit Analysis

The Bioassay and Probit Analysis software package performs parallel line assay and probit analysis.

A parallel line assay is a technique to determine the potency of an unknown chemical or drug, relative to the potency of a known chemical or drug. In performing an assay, various dilutions of the known and unknown chemicals are made and administered to varying (in randomized design) or equal (in randomized complete block design) subjects.

The system supports both completely random design, in which the number of responses per dose may vary from dose to dose; and randomized complete block design, in which each response constitutes a block. The number of blocks per dose must be constant from dose to dose.

All computations are performed to 13 digits and rounded on output.

The Probit Analysis program, like the Bioassay program, is aimed at determining the potency of an unknown chemical in relation to a known chemical. The Probit Analysis program, however, is based on data involving an *all-or-nothing response.* Also, Probit Analysis permits standard and test preparations to be analyzed separately, giving a graph and statistical information about only the preparation being analyzed.

Any number of test preparations (unknown compounds) may be used to reference a single standard (known compound).

Support Status: Unsupported
Hardware: T/VP/SVP/PCS-II
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-1033-3(5)(8)

Liquid Scintillation Data System (LSDS)

The Liquid Scintillation Data System is made up of the following six programs.

Single Label Liquid Scintillation — This program calibrates quench curves for liquid scintillation counters and uses these curves to correct counts for quenching. The program is used for single label counting.

Dual Label Liquid Scintillation — This program performs the same operation as Single Label for dual label counting.

Single Label Digital Integration — This program sums the total activity of a sequential set of data and distinguishes peaks of activity in that set of data. This program is used for single value analysis.

Dual Label Digital Integration — This program performs the same operation as Single Label for dual value analysis.

Quench Curve File Maintenance — This program allows the operator to update or modify calibrated quench curves.

Input/Output Test — This program aids the operator in understanding how the I/O parameters for the system function.

LSDS is a diskette-based system, permitting random access of records or files and automatic updating of the quench curve file.

Support Status: Unsupported
Hardware: T/VP
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-1026-3

Multiple Comparison Tests

The Multiple Comparison Tests are used to show which group or groups are significantly different from the others when Analysis of Variance (ANOVA) of a single-factor experiment yields a significant F statistic.

Seven Multiple Comparison Tests are included in the package.

- Newman-Keuls Test (allows comparison of differences between two means)
- Duncan Test
- Tukey Procedure
- Scheffe Procedure (allows all possible comparisons rather than only those involving two treatment means)
- Fisher's LSD
- Modified Least Significant Difference (LSD) Test
- Dunnett's Test (used for comparing all treatment means with a control)

The package is available in diskette and minidiskette versions. These versions handle up to 20 groups for comparison, with up to 55 observations per group.

Support Status: Unsupported
Hardware: T/VP/MVP/LVP/SVP/PCS-II
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-1032-3(5)(8)

RadioImmunoAssay Data System (RIADS)

The RadioImmunoAssay Data System (RIADS) is a series of assorted techniques to aid in the processing of R.I.A. data. A variety of curve-fitting techniques is supplied so that the user may select the most appropriate technique for a particular assay.

RIADS is available in diskette, but can be converted to hard disk. The diskette version comprises five diskettes with the following programs.

- Single and Dual Label Linear Interpolation
- Hepatitis Associated Antigen
- T-3 Uptake
- Logit Programs
- Polynomial Fit Programs
- Spline Fit Programs

As a diskette-based system, RIADS permits random access of records and files, and automatic updating of protocol files.

Support Status: Unsupported
Hardware: T/VP/PCS-II
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-1028-3(8)

Regression Analysis

The Regression Analysis package consists of 12 programs that perform a variety of statistical functions. Observations are entered through a keyboard, stored on a disk, later read back into memory, and used to produce results such as standard deviation, regression coefficient, T-value, covariance values, and others.

Eight utilities are provided in the package to ease data and program management. These utilities provide the capability to copy and verify existing files, delete obsolete data files and observations, redimension the disk to better utilize available memory, merge data files, and transform existing files to create new files.

Statistical programs include the following.

- Linear Regression Analysis
- Least Square Fit — Geometric
- Least Square Fit — Exponential
- Curve Fit — Sum of Two Exponentials
- Curve Fit — Sum of Three Exponentials
- Polynomial Regression Analysis
- Polynomial Regression Analysis (Coefficient Only)
- Stepwise Polynomial Regression Analysis
- Multiple Linear Regression Analysis
- Multiple Linear Regression Analysis (Coefficient Only)
- Stepwise Multiple Linear Regression Analysis
- General Multiple Linear Regression Analysis

All Regression Analysis programs and utilities are contained on one diskette to permit easy access of the procedure desired.

Support Status: Unsupported
Hardware: T/VP/MVP/LVP/SVP/PCS-II
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-1010-3(5)(8)

Sequential Analysis

The Sequential Analysis package handles seven common cases of testing a simple null hypothesis (H0) against a simple alternative (H1). Programs include the following.

Normal Distribution I — Tests hypotheses on the mean of a normally distributed variate whose variance is known. H0 and H1 must be simple.

Normal Distribution II — Tests hypotheses on the standard deviation of a normal variate whose mean is known. H0 and H1 must be simple.

Normal Distribution III — Tests hypotheses on the standard deviation of a normally distributed variate whose mean is not known. H0 and H1 must be simple.

Normal Distribution IV — Tests whether the mean of a normally distributed variate, whose variance is known, is equal to a specific value. A deviation value must be specified.

Binomial Distribution — Tests hypotheses on the proportion of a variate having a binomial distribution. H0 and H1 must be simple.

Negative Binomial Distribution — Tests hypotheses on the mean of a variate with a negative binomial distribution whose exponent is known. H0 and H1 must be simple.

Poisson Distribution — Tests hypotheses on the parameter of a variate with a Poisson distribution. H0 and H1 must be simple.

The user loads the appropriate program into memory and enters the values relevant to the problem. The system is capable of producing six kinds of result output.

The minimum output consists of the value keyed in, plus three numbers labeled "slope", "h0", and "h1." Also available are a table of acceptance/rejection numbers, a message stating the formula for the test statistic, a graph of the acceptance and rejection lines, a graph of the Operating Characteristic function (the probability of accepting H0 for a range of "true" values for the parameter being tested), and a graph of the Average Sample Number function (the expected or average value of the (variable) sample size for a range of "true" values of the parameter being tested).

Support Status: Unsupported
Hardware: T/VP/MVP/LVP/SVP/PCS-II
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-1016-3(5)(8)

2200 UTILITIES

Asynchronous I Telecommunications

A Wang computer system can transmit and receive data over telephone lines using the Asynchronous package, a variety of communications controllers, and a suitable modem.

The system can be linked readily to any host computer which communicates with terminals having the characteristics of a 2741 or Teletype.

The 2200T, 2200VP, 2200MVP, and 2200LVP use either a 2227B, 2228B, or 2228C communications controller. The 2200SVP uses Option 27B, 28B, or 28C. The PCS-II uses an Option 62 or 62B controller.

A minimum of 8K user memory is required. Maximum speed is 7200 bps.

Support Status: Supported
Hardware: T/VP/MVP/LVP/SVP/PCS-II
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-2056-3(5)(8)

Bisynchronous I Telecommunications

The Bisynchronous package provides emulators operating under the binary synchronous communications protocol. The emulators provided are 2780, 3780, 3741, and HASP workstation. A 2200 to 2200 version is also included.

The 2780, 3780, and 3741 protocols require a minimum of 8K user memory. HASP and 2200/2200 versions require a minimum of 16K. Maximum speed is 7200 bps.

The 2200T, 2200VP, 2200MVP, and 2200LVP versions use a 2228B or 2228C communications controller. The 2200SVP uses an Option 28B or 28C. The PCS-II version uses Option 62B.

Support Status: Supported
Hardware: T/VP/MVP/LVP/SVP/PCS-II
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-2057-3(5)(8)

Burroughs Emulation Software Utility

The Burroughs Emulation Software Utility, in conjunction with a synchronous/asynchronous communications controller, provides the capability to emulate the Burroughs TC and TD series terminals.

The software includes the microcode and fundamental modules for establishing and maintaining the Burroughs Poll/Select protocol, including Poll, Select, Fast Select, and Broadcast Select communications features.

The emulator supports keyboard entry of messages, recall of stored messages, message editing, and transmission to a Burroughs host system. Received data and messages are displayed on the terminal or printed.

Features of the package include:

- Point-to-point or multipoint data links
- Asynchronous or synchronous transmission
- Interactive or batch applications
- Variable record lengths of up to 2,000 characters
- Line speeds up to 7,200 bits per second
- Extensive error checking

The 2200T, 2200VP, 2200MVP, and 2200LVP versions use a 2228B, or 2228C communications controller. The 2200SVP requires an Option 28B or 28C. The PCS-II uses an Option 62B.

A minimum of 16K memory is required.

Support Status: Supported
Hardware: T/VP/MVP/LVP/SVP/PCS-II
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-0047-3(5)(8)

EASYFORM III

EASYFORM III is an easy-to-use, preprogrammed data entry system which allows a CRT operator to create data entry forms, and later enter data using the forms.

Each form appears on the CRT screen and consists of operator prompt messages and multiple fields for data entry. Up to 50 fields with a maximum of 720 characters may be assigned to each form.

EASYFORM programs fall into two categories: form-related and data-related. Form-related programs allow the operator to create, modify, and print out forms. Data-related programs allow the operator to create, update, and print data files; create or modify a preprinted format; search for specified data in the files; and reorganize the sequence of records in the data files.

EASYFORM also provides a repertoire of math functions.

EASYFORM III uses Release 5 of the Key File Access Method (KFAM). KFAM is a disk file access method which maintains an "index" containing each record's key field value and corresponding record location within the data file. This index of data records reduces the time needed to locate a specific record.

Support Status: Unsupported
Hardware: T/VP/SVP
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-2058-3(5)

Graph Utility System (GUS)

The Graph Utility System (GUS) enables users to draw and label two- and three-dimensional graphs of several types and variable size on any Wang plotter.

The user enters information directly into the computer to define plotter type, plotting parameters, data sources, and label configurations.

In two-dimensional plotting, the user can plot line graphs, point graphs, and bar graphs, using a set of data points or a mathematical expression to represent the graph. Data expressed in rectangular coordinates can be plotted on linear, logarithmic, and semi-log axes. Data expressed in polar coordinates can be plotted on a linear rectangular axis system. Character labeling can be generated from either a standard or user-specified character set.

In three-dimensional plotting, the user must supply a mathematical expression of the three-dimensional surface or object to be plotted. The system produces a two-dimensional representation of the 3-D surface or object. The image is projected onto the plotter or CRT screen and lies in a two-dimensional Cartesian coordinate system.

GUS consists of the following modules, each with a fill-in table for the user to enter data.

Enter Parameters — The user defines the size of the plot area, the graph and scale types, and the extreme values of the X and Y axes. For three-dimensional plotting, the user specifies direction of view, hidden points, and line options for scaling and plotting.

Enter Data Points — This module, used for two-dimensional plotting, allows the user to create a file of data points.

Enter Labels — The user creates plotting labels by defining label text, character slant, text rotation, and position.

Start Plot — The user enters the file names of the parameter, data points, and label files to be used for plotting.

Initialize System — This module is activated the first time the system is run. Entries include plotter type, plotting units, and CRT screen size.

Support Status: Supported
Hardware: T/VP/MVP/LVP/SVP/PCS-II
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-2061-3(5)(8)

IDEAS ™ (Inquiry Data Entry Access System)

IDEAS (Inquiry Data Entry Access System) is a powerful application development tool which can be used to create and maintain data files, generate sophisticated screen formats, solicit and validate operator-entered data, and produce complex reports.

Utilization of IDEAS can greatly reduce the programming effort required to produce versatile and comprehensive data entry systems. IDEAS is also convenient for small applications which do not warrant extensive programming time.

IDEAS uses the Hashed Index Keyed Access Method (HIKAM). HIKAM offers a unique combination of hashing and indexing access techniques which handle insertions and deletions easily, optimize data storage and retrieval, work significantly faster than indexing, and perform well in both sequential and random access environments.

Functions performed by IDEAS include the following.

Report Generation — Report/Form Printing utilities allow the user to design and implement complex reports quickly. Reports may contain three levels of totaling in addition to page totals and page numbers. Each report may contain up to 10 math constants and 32 math functions.

Application Program Generation — All applications programs generated by IDEAS use a subset of the system-resident macros. These macros are a set of 59 subroutine calls designed to minimize programming efforts in all phases of IDEAS-developed applications.

File Management — The maximum file size on an IDEAS-developed system is virtually unlimited since multiple volume files are supported. A logical file may span up to eight disk platters on line.

Data Recovery — The File Recovery utility reconstructs damaged data files from information saved on disk.

Telecommunications — A utility to convert IDEAS files to standard telecommunications format allows the use of all standard Wang telecommunications utilities and emulators.

Data Entry Programs — Data entry, inquiry, and update programs can be generated. Eight different types of data entry programs can be created, each with a different set of available data entry operations.

Screen Formatting — Screen Mask utilities allow the user to develop the screens necessary for interactive application systems.

Menu Displays — Menu displays are quickly created by the Application Menu Program utilities. Each menu may have up to 13 programs or submenus. A password security system is available through the Menu utilities.

The IDEAS package requires users to have a strong data processing background.

Support Status: Supported
Hardware: T/VP/MVP/LVP/SVP
Language: BASIC/BASIC-2
Ordering Information: Vendor orders must be submitted on a signed Uniform License Agreement (#51079) accompanied by an IDEAS Vendor Disclaimer form. End user orders must be submitted on the Uniform License Agreement accompanied by an IDEAS Customer Disclaimer form. If the order form is complete and correctly submitted, it is logged in and sent to the Wang Legal Department for approval. The order is then shipped with date of shipment indicated on the Uniform License Agreement. Billing information is sent to the Wang Supplies Division.

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IDEAS SOFTWARE UTILITIES

I understand that application systems developed by (Vendor Name) using the IDEAS software utilities are available for sale. I further understand that all rights, titles, and interest in the IDEAS software utilities remain vested in Wang Laboratories, Inc., and are furnished for the internal use of (Vendor Name) only and may not be sold, loaned, or otherwise disclosed to third parties without prior written consent of Wang Laboratories (Subsidiary Name)

SIGNED BY: _____ TITLE: _____
(Vendor)

DATE: _____

Package Number: 195-2115-3(5)

Integrated Support System (ISS)

The Integrated Support System (ISS) is a highly versatile software system providing a wide range of programming and utility support through its file access software, utilities, and subroutines.

The Key File Access Method (KFAM), an indexed sequential file access method, is included in all ISS packages. KFAM offers rapid access to data with subroutines capable of handling both random and sequential record access.

A SORT subsystem offers a variety of record and file formats for sorting records.

Utility programs assist the application programmer by providing important standard functions for disk file maintenance.

ISS utilities include Copy/Verify, Create Reference File, List/Cross-Reference, Compression, Decompression, Sort Disk Catalog, Disk Dump, File Status Report, Program Compare, Reconstruct Disk Index, and Alter Disk Index.

Screen disk subroutines facilitate application programming by providing a simple interface between user-written application programs and a wide range of tasks requiring system-to-disk and system-to-user interaction.

ISS subroutines include Data Entry, Date Routines, Select/Validate Disk Addresses, Search Index, Allocate Data File Space, Free Unused Sectors, Limits Next, Open/Close Input/Output, Multiplexed/Multistation File Open/End/Close, and Translation Table subroutines.

KFAM subroutines support access to data file records according to ascending, descending, or random key sequence. KFAM 3 and 4 support single users only. KFAM 5 and 7 support multiple users. In addition, KFAM 7 supports multiple key files for a single user file, and maintains a duplicate key convention.

Wang supports three releases of ISS.

ISS Release 2.1 runs on the 2200T and includes KFAM Releases 3 and 4.

ISS Release 3.2 runs on the 2200T (with multiplexed disk), 2200SVP, 2200LVP, and PCS-II, with KFAM Release 5 (multiplexed).

ISS Release 5.2 runs on the 2200VP, 2200LVP, 2200SVP, and 2200MVP, with KFAM Release 7 (single and multiple bank).

Support Status: Supported
Hardware: T/VP/SVP/LVP/MVP/PCS-II
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Numbers: 195-0004-3 (Release 2.1)
195-0037-3(5)(8) (Release 3.2)
195-0052-3(5) (Release 5.2)

Plotter Utilities

The Plotter Utilities package comprises a group of utility subroutines designed to perform a variety of commonly used plotting operations, and to simplify general plotter control for the applications programmer. The utility routines are not written as stand-alone programs (although they can be accessed directly), but as subroutines which can be called from a user-supplied applications program.

The following subroutines are included in the package.

- Set Plotter Boundaries
- Load Character Generation Array
- Plot Character String (Straight Line)
- Plot Character String (On a Circle)
- Plot Line Between Two Points
- Plot Coordinate Grid
- Plot Circle
- Plot Border Around Active Plotting Area
- Clear Surface/Pen Select
- GIN Mode routine (Enables the 2200 to receive graphic input in the form of screen coordinates from certain models of the Tektronix graphic display terminal.)
- Plot Instruction Emulator
- Plotter Control routine

Support Status: Supported
Hardware: T/VP/MVP/LVP/SVP/PCS-II
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-0021-3(5)(8)

Report Program Language (RPL)

The Report Program Language (RPL) has been developed to simplify report generation on the 2200 computer, by allowing the user to tailor-make reports easily and quickly.

The system consists of programs coded in BASIC. The user writes code in the simple Report Program Language, and the system transforms this code into BASIC. A wide variety of reports can be generated, even by those without a strong programming background.

The RPL system is a collection of three types of programs, representing the three necessary phases in the creation of an RPL program.

- Writing and keying in the program
- Compiling the program
- Running the compiled version on the 2200

Support Status: Unsupported
Hardware: T/VP/MVP/LVP/SVP
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-0019-3(5)

Telecommunications (TC) Support Utilities

The Telecommunications (TC) Support Utilities package contains programs designed to perform special functions associated with telecommunications applications where data or program files, or both, are to be transmitted from or received to disk.

Collectively, the programs in the package are referred to as the Telecommunications Support Utilities. However, each program in the system is essentially stand-alone in nature, and has its own operating instructions.

TC Support Utilities programs include the following.

Data Entry 1 — This program allows the user to create a new disk data file in TC format; or to edit, delete, rearrange, create, and list records in an existing TC formatted disk data file.

De-atomize — This program allows the user to de-atomize a BASIC language program currently stored on disk in Wang's standard program file format, and also to convert the program file into a TC formatted disk data file suitable for subsequent transmission to a remote system.

Atomize — This program allows the user to atomize a BASIC language program previously received from a remote system and currently stored as a TC formatted disk data file. The TC format is automatically converted into Wang's standard program file format.

Offline Print — This program is used to print files which are received via Wang telecommunications emulators using the print spool to disk option.

List/Dump — This utility allows the printing of disk files in TC format. Options include CRT or printer output, and ASCII or Hex format.

TC Subroutines — These subroutines are provided to assist the programmer in accessing disk files in TC format.

Support Status: Supported
Hardware: T/VP/MVP/LVP/SVP/PCS-II
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-0026-3(5)(8)

Text Editing Utilities

The Text Editing Utilities package allows the user to add text editing capabilities to Wang computer systems. It contains utilities that create and edit text, store text on disk, maintain the disk, and print out stored text.

Hard disks and floppy diskettes have random access, allowing any document stored on disk/diskette to be retrieved quickly.

Programs in the Text Editing Utilities package include the following.

Text Editor — Used for inputting text and correcting text already stored on disk. Operations include text entry, positioning the cursor, inserting text, deleting text, and disk operations.

Disk Table of Contents — Lists documents on disk in alphabetical order.

Copy Text — Copies a single document, entire volume, or part of a document.

Move Text — Moves sections of text within a document.

Global Replace — Makes the same change to the text as many times as it appears within a document.

Delete a Document — Removes unwanted text from a disk so that new information can be stored in its place.

Document/Letter Assembly — Assembles paragraphs and/or documents or creates form letters to be printed out.

Print Addresses — Prints names and addresses from the letters.

Print a Document — Produces printed output of text stored on disk.

Data Conversion — Copies text.

This package is designed for operators with minimal training.

Support Status: Unsupported
Hardware: T/VP/MVP/LVP/SVP/PCS-II
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-0018-3(5)(8)

3740 Diskette Compatibility Software

IBM 3740 diskette compatibility is possible with this group of utility programs and subroutines, which maintain files in IBM 3740 format.

Wang's 3740 Diskette Compatibility Software, designed for use with the IBM 3740 Compatible Diskette Drive, provides a set of utility programs which implement operations such as the following.

- Displaying a 3740 diskette catalog providing the names of stored files and the addresses of each file's reserved and used sectors.
- Displaying 3740 sector dumps for the sectors in a specified address range.
- Performing media conversion of Wang disk/diskette files to 3740 diskette files or vice versa (3740 Diskette Compatibility Software processes TC-formatted Wang files).
- Producing hard copy of a specified 3740 diskette file or a Wang diskette file previously converted from a 3740 diskette.

The software also provides utility subroutines which can be integrated with user-written BASIC language application programs where 3740 diskettes are to be accessed directly for file creation or maintenance. These subroutines handle the following types of operations.

- Opening a new or existing file
- Reading, rereading, or writing a sector
- Skipping or backspacing a specified number of sectors
- Writing or updating an "end-of-data" pointer position
- Closing a file

Support Status: Supported
Hardware: T/VP/MVP/LVP
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-0041-3(5)

3275 BSC Emulator

Wang's 3275 BSC Emulator package facilitates communications between a Wang system and host computers which support IBM 3275 Display Stations (Model 2) for applications including data entry, order entry, inquiry/response, and inquiry with data base update. A 2228C or Option 28C is required.

Features of the software include the following.

- 1,920-character display capability, using any Wang 24-line by 80-characters-per-line CRT.
- Emulation of the unbuffered, 40-characters-per-second printing capability of a 3284 printer, using any Wang printer.
- Information handling by the Wang system and its operator on a field-by-field basis in accordance with the host-supplied attribute byte for each field.
- Screen formatting, field checking, and field protection, corresponding to the attribute bytes for the displayed data.
- Transmission on a record/block basis using the BSC point-to-point contention protocol over dial-up or nonpolled leased lines.
- Line speed of 1,200, 2,000, 2,400, or 4,800 bits per second, depending upon modem used.

Support Status: Supported
Hardware: T/VP/MVP/LVP/SVP
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Number: 195-0048-3(5)

2209 and 2209A Nine-Track Tape Utilities

This group of utilities, needed to operate the 2209 and 2209A nine-track reel-to-reel magnetic tape drives, performs important tape labeling and code conversions. The user can save a great deal of time and effort by using these utilities.

To transfer data from card reader or disk to tape, or from tape to disk, or to dump data from tape, the appropriate peripheral must be available. The routines in this package can process single volume, single data-set tapes. Tapes may have IBM/ANSI standard tape labels or have no labels. Non-standard labels cannot be processed with the utility programs.

The routines operate at four levels.

- A Loader loads all nine-track routines and subroutines into memory and provides a user 'menu' to simplify program selection.
- A Physical I/O Control System (Physical IOCS) contains the subroutines which perform physical operations on tape, such as rewinding, backspacing, writing a file mark (EOF), etc.
- A Logical I/O Control System (Logical IOCS) contains the subroutines which perform logical I/O operations including opening and closing of files, translations from ASCII to EBCDIC (and vice versa), and creating or updating internal tape labels.
- A set of Primary routines initializes, writes, and updates volume labels, reads or writes data, and transfers data from tape to disk, disk to tape, and card to tape.

Support Status: Supported
Hardware: T/VP/MVP/LVP
Language: BASIC/BASIC-2
Ordering Information: Contact the Wang Software Support Center
Package Numbers: 2209: 195-0017-3(5)
2209A: 195-0031-3(5)

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700-6517
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