Tektronix
4050 Series

Supplementary Software and Services

4050 Series
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4050 Series
4050 Series
4050 Series
4050 Series
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Programs and programming support for Tektronix 4050 Series available from other sources.

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Title: TOUCH 'N DRAW:™ - A system for Computer-Aided Design and Drafting (CADD)

Abstract: The TOUCH 'N DRAW™ system offers an array of design and drafting capabilities for a broad range of disciplines. Whether you're an architect, an industrial designer, an interior designer, a landscape specialist, or an electrical designer, TOUCH 'N DRAW will simplify your job and help you do it faster and more efficiently.

It is an interactive software package designed to run on a Tektronix 4050 Series desktop graphic computer, 4663 plotter, 4907 file manager, and a 36″ x 48″ digitizer. Created by designers, the package consists of a number of easy-to-use software programs, including Architectural Floorplan, General Drawing, Symbol Placement, Texturing, Annotation, Area/Line Measurement, Menu Generation, Production, Utilities, and Cost Estimating.

TOUCH 'N DRAW requires no knowledge of computer programming through program operation by explicit, easy-to-understand instructions on the CRT screen. In addition, the light-emitting diodes on the menu board ensure that designers always know what operations they are doing, and a four-level "push button" recovery routine enables a user to return to the last successful operation in the event of a system or drawing input error. Designers may create entirely new and permanent symbols and menus that may be required for new projects. In this way, the system can be easily expanded to suit a firm's changing needs.

Equipment Required:

32K Memory, 4907 Option 31, 4663, 36″ x 48″ Digitizer.

Other Peripherals Supported:

Any large plotter.

Price: $30,000. Includes Menu-board,™ Message Bar,™ X-Y Pointer, 300 pages of documentation.

Contact: David M. Arrigoni
Arrigoni Computer Graphics, Inc.
231 O'Conner Drive
San Jose, California 95128
(408)286-2350

Title: Circular and Strip Chart Reduction

Abstract: Circular and strip charts may be reduced to normalized integrated values with the aid of these programs. Program maintains a catalog of recorder numbers and characteristics. Data may be transmitted to a central computer after collection. System includes chart catalog editor, digitization program, and data transmission programs.

Minimum 4050 Series Equipment:
32K Memory, 4956 Graphics Tablet

Other Peripherals Supported:
Option 1 Data Communications Interface

Price $1250. Includes documentation.

Contact: Leonard G. Barton
Leonard G. Barton Computer Graphics
1248 Juanita Drive
Walnut Creek, California 94595
(415)939-5889

Title: Graphic Traverse and Mapping

Abstract: This program is useful for the reduction of field notes and for the rapid visualization and creation of maps from formal property descriptions. Angle entry is in a concise, easily keyed form with immediate testing for appropriateness and redisplay in human-readable form. Distances may be entered as horizontal or as slope distance with zenith or horizontal angle. Error of closure may be calculated and displayed as northing and easting error, bearing and distance or error, and as ratio of error to perimeter. Field traverse may be adjusted by Crandall's, compass, or transit rules. Original entry data is not destroyed by adjustment process. Area within parcel boundary is calculated using the DMD method. Accuracy of calculation is not affected by error of closure, northing and easting of initial point or configuration of boundary. Boundary descriptions may include arcs specified by central angle, course from arc center to arc terminus, or by length along arc. Arc parameters calculated and displayed include the bearing and length of the chord, the arc length, and the length of the semi-tangent. Angles may be entered relative to north (azimuth or bearing) or relative to a backsight along the previous traverse leg (angles right, left, or deflection).

Side shots may be entered singly or in groups from a common point. Any one point on a traverse or side shot may be set to a specific northing and easting, with all other points properly adjusted relative to that point. Open traverses may be adjusted to a desired coordinate location. Maps may be plotted to any scale with automatic generation of multiple sheets where required. Lines may be annotated from stored data if desired. Traverse and parcel descriptions may be saved to and recovered from magnetic tape. Move to and draw to functions allow the generation of block maps containing multiple parcels. System capacity is sufficient to allow a file to contain an entire block.

Any number of files may be linked to form a map of arbitrary size and complexity. Entries of angle and distance may be modified, inserted, or deleted at any time. Correct portions of entries may be re-entered with a single keystroke. Repeated angles or distances are also simply done with a single keystroke. The inverse between any two points may be calculated at any time. An entire traverse (in relative form) may be rotated by modifying the initial course direction.

Minimum 4050 Series Equipment:
32K Memory

Other Peripherals Supported:
4662 Plotter (4663 Plotter use available on special order)

Price: $350. Includes documentation.

Contact:
Leonard G. Barton
Leonard G. Barton Computer Graphics
1248 Juanita Drive
Walnut Creek, California 94595
(415)939-5889

Title: Graphic Subdivision Design
Also see Public Utility Mapping System

Abstract: Developed for the subdivision designer, the software system has use in other measurement, design and map generation tasks such as road design, easements and rights of way, utility and structure placement, condominium and townhouse filings, park and campsite design, and underground and surface mining with land restoration.

Starting from the initial field survey all locations and elevations may be plotted to precise scale. Lot, pad and building boundries may be plotted alone or with post grading elevations for pad certification. Large or small plotter output to any scale, on single or multiple sheets, may be used to form a map directly useable for design or proposal presentation or useful as a guide for manual production of a finished map by tracing.

Adjustment of open or closed traverse by Crandall's, Compass, or Transit methods, plus Angles Adjust, Rotate, Translate, Scale, and Change Coordinate Basis allow precise control over field data. Vertical information may be entered from data obtained by Electronic Distance Measure (slope or horizontal distance) or by Stadia. Solar Sight Reduction with multiple sight entry, sight selection and averaging is provided. Grade is maintained both for straight segments or through curves. Interpolation aids for the generation of topographic maps are included.

A complete lot specification report with rounded bearings and distances, resultant error of closure and area calculation may be obtained from the design data and is suitable for land registration. This document satisfies most agency requirements without additional work.

Horizontal and vertical point location information provides all data needed for calculations in the field. Turning point and order of point presentation are directly controlled by the computer system operator, allowing the staking list to be presented to the field crew in a logical and efficient order.

Bearings or distances may be called and be further modified. Copy, Rotate, and Translate allow re-use of constructed groups of points, orientation of field data, and simple, powerful modification of the design.

Computational Features are traverse, inverse, intercepts by bearing-bearing, bearing distance, distance-distance. Offset intersection. Road centerlines and curb returns by point of intercept (inscribed curve) or by specified centers (tangent offset). Curve points may be defined by mod-ordinate. Project points onto line or arc. Divide line or arc, equally or proportionally. Centerline offset and right of way calculation. Scale, change evaluation, or change coordinate basis of entire project with simple commands.

Minimum 4050 Series Equipment:
32K, 4907, 4052 or 4054 with 64K recommended.

Other Peripherals Supported:
4907 Option 30, 4662 and 4663 plotter, 4641 printer.

Price: $3850. Includes documentation and training.

Contact: Leonard G. Barton
Leonard G. Barton Computer Graphics
1248 Juanita Drive
Walnut Creek, California 94595
(415) 939-5889

Title: Public Utility Mapping System
Also see Graphic SubDivision Design

Abstract: Designed for use by a utility company, this system combines the computational features of Graphic Subdivision Design (described elsewhere) with special purpose graphic features.

Maps are produced on pre-printed forms of various sizes using a 4663 plotter. Included is title block fill in and other fixed information from job related sheet definition files. Special graphic symbols are included for monuments, new and existing poles, and poles to be deleted. Poles may include one or two ties, with the direction of ties calculated and plotted automatically.

Line types include centerline, right of way, tie line, and pole line. Tie lines and pole lines may be annotated as to bearing and distance, with information generated from computed data. Annotation may be placed on the lines by the program or may be located as directed by the operator.

North arrow may be placed at a location determined by the operator, with sheet oriented in any direction. Notes may be placed at locations chosen by the operator and will be automatically enclosed in a box if so desired. Arrows for notes may be placed at locations desired.

All information generated on a plot is saved on a file. The entire sheet may be modified and/or re-plotted at any time.

Minimum 4050 Series Equipment:
56K Memory, 4663 Plotter, 4907 File Manager.

Other Peripherals Supported:
4907 Options 30 or 31, 4641 Printer

Price: $4850. Includes documentation, training and customization.

Contact: Leonard G. Barton
Leonard G. Barton Computer Graphics
1248 Juanita Drive
Walnut Creek, California 94595
(415) 939-5889

Title: Coordinate Geometry and Supplementary Programs.

Abstract: A set of user-interactive programs to solve the problems most frequently encoutered by land surveyors, written and tested by registered land surveyors. All standard coordinate geometry routines are included; traverse, inverse areas, coordinate transformations, intersections, horizontal and vertical curve solutions, field note reduction, balance (up to 2500 sides) and more. Traverse may include note reduction and may be stadia or trigonometric with auto curvature and ref. correction if desired. Works with up to 14,000 coordinate triples (north, east and elevation).

Plotting is with full annotation, including plot by horizontal coordinates or by station and elevation or by east coordinate and elevation. Plot may be to any scale horizontal or any combination or scales horizontal and vertical. Plot may be any combination of points, lines and curves. Annotation may be any combination of point numbers, course numbers, bearing and distance, and elevations. Point numbering may be automatic or user-controlled or a combination of both. Data storage may be disk or tape.

Minimum 4050 Series Equipment:
32K, 4907 File Manager, 4662 Plotter

Other Peripherals Supported:
4641 Printer

Price: $500. Includes documentation

Contact:
Forrest G. Stanley
Lawrence A. Brewer and Associates
P.O. Box 2079
909 West Apache
Farmington, New Mexico 87401
(505)327-3303

Title: Drafting Package - 1 (DP-1)

Abstract: DP-1 software is a two-dimensional drafting package laid out the way draftsmen, designers, and engineers are accustomed to doing their work. The software contains the generally accepted line types, line functions, circles, arcs, and dimensioning capabilities that the daily drafting job routinely faces. Lines may be interactively entered via 4952 Joystick, 4956 Tablet, or directly from the keyboard. Line types available are solid, dashed, phantom, center, and arrowheads. Capability of drawing lines truly vertical, truly horizontal, as well as at any given angle. Lines can also be generated that are parallel to any given line and perpendicular to any given line. The ability to connect right angles correctly is also included. Circles and arcs can be generated from a number of different given conditions. Circles can be developed when given the center and radius, from the two opposite ends of the diameter, and when three points on the circumference are input. Tangent to two lines with a given radius is also incorporated. Fillets and rounds may be drawn in either solid or hidden line type. DP-1 software has a built-in Grid System (which may be turned on or off as the operator chooses) to ensure, when required, positive line interconnection. The overlaying capability permits the user to call more than one data file (layer) to the screen and display them concurrently.

The Current Active Layer is indicated and may be repositioned rotated, scaled, or modified as required. All displayed layers may be listed and the operator can cause any displayed layer to become the current active layer. Scaling is available to allow sizing either up or down and is completely under operator control. There are no predetermined multipliers or divisors thus allowing total freedom to scale. Any drawing (the Current Active Layer) and all its ancillary information may be rotated at any angle about any given point. The user may select any area on the Current Active Layer and cause it to display expanded on the full work area. Transposition - the Current Active Layer with all of its attendent information may be relocated to any place the operator chooses. Drawings may be modified interactively. Changes or deletions to notes, labels, dimensions, circles, arcs, or points can be easily effected. Labels may be numeric or alphanumeric and located either internal or external to dimension lines. Labels can be varied as to size and will permit tolerances to be entered by the operator. Dimensions may be drawn horizontal, vertical, parallel, circular to an angle, as well as rotated to any angle. Internal and external arrowheads are provided for. Text can be entered as normal drafting techniques require. Manufacturing notes, appendages, and generalized information can be located anywhere without restriction. The capability to place text at any angle and size that is operator specified is included within DP-1. The software contains output commands to Tektronix Digitial Plotters as a standard part of the package.

Minimum 4050 Series Equipment:

64K Memory, 4907 File Manager with Option 40, 4956 Tablet with 4-button cursor (119-0875-00). 4952 Joystick. Output device such as 4662 or 4663 Plotter or 4631 Hard Copy unit.

Other Peripherals Supported:

4907 Options 30 or 31, 4956 Option 33.

Price: $9500. License fee includes source code.

Contact:

Dr. Jerald A. Griess
Com-Code Corporation
1977 Chevrolet Street
Ypsilanti, Michigan 48197
(313) 483-0295

Title: Bostomatic Mill with SPC (G.P.P.)

Abstract: This Graphics Post-processor (G.P.P.) is written for the Tektronix 4050 Series Graphic Computing System and provides graphic verification of Bostomatic Mill with SPC ASCII Numerical Code.

Product features: displays of tool centerline paths in the X Y and the Y Z planes representing rapid traverse and linear cuts, display of tool diameters at the end of each move or cut in the X Y plane, displays with either individual or multiple tool paths, automatic printout of most current block of data on program interrupt by user, establishment of part zero in the X Y plane under program control, establishment of part zero in the X Y plane by the user, magnification of any portion of the X Y plane or the Y Z plane, ability of user to set a specified scale, circular contours in the X Y plane, linear contours in both the X Y and Y Z planes, capability to being a N/C tape preview with a specified tool, canned shape storage (one level of nesting) of up to 50 shapes and/or 1,000 data items, error checking diagnostic for current incoming data, output of displays to the Tektronix 4662 Digital Plotter.

Minimum 4050 Series Equipment:
32K memory, Data Communications Interface

Other Peripherals Supported:
4662 Plotter

Price: $6,925. License fee includes source code.

Contact:
Dr. Jerald A. Griess
Com-Code Corporation
1977 Chevrolet Street
Ypsilanti, Michigan 48197
(313)483-0295

Title: Cincinnati Milacron CNC Cinturn (G.P.P.)

Abstract: This Graphics Post-Processor (G.P.P.) is written for the Tektronix 4050 Series Graphic Computing System and provides graphic verification of Cincinnati Milacron CNC Cinturn ASCII Numerical Code.

Product features: display of paths of the I.D. and O.D. common tool points, displays of either individual or multiple tool paths, capability to begin a N.C. tape preview with a specified tool, automatic printout of most current block of data on program interrupt by user, capability to input user specified offsets for special parting tools and left hand turning tools, straight constant lead threads display where specified, circular interpolation (clockwise and counterclockwise), display of chuck and stock.

Minimum 4050 Series Equipment:
16K memory, Data Communications Interface

Other Peripherals Supported:
4662 Plotter

Price: $2,250. License fee includes source code.

Contact: Dr. Jerald A. Griess
Com-Code Corporation
1977 Chevrolet Street
Ypsilanti, Michigan 48197
(313)483-0295

Title: Giddings and Lewis—Bickford (G.P.P.)

Abstract: This Graphics Post-Processor (G.P.P.) is written for the Tektronix 4050 Series Graphic Computing System and provides a graphic verification of Giddings and Lewis—Bickford 10 HS Numericenter ASCII Numerical Code.

Product features: displays of tool centerline paths in the X Y and Y Z planes representing rapid traverse and linear cuts, rotary indexing for two fixtures, storage of up to 16 subroutines (one level of nesting) and/or 1,000 data items, displays with either individual or multiple tool paths, establishment of part zero in the X Y plane by the user, approach reference plane and retract reference plane for fixed cycles, origin offsets, circular interpolation in the X Y plane, capability to being a N/C tape preview with a specified tool, automatic printout of most current block of data on program interrupt by user, magnificiation of any portion of the X Y plane, ability to enter and display tool diameters for drill cycles, linear contours in both the X Y and Y Z planes, error checking diagnostic for current incoming data, an absolute coordinate system, output of displays to the Tektronix 4662 Plotter.

Minimum 4050 Series Equipment:
32K memory, Data Communications Interface

Other Peripherals Supported:
4662 Plotter

Price: $6,925. License fee includes source code.

Contact:
Dr. Jerald A. Griess
Com-Code Corporation
1977 Chevrolet Street
Ypsilanti, Michigan 48197
(313)483-0295

Title: Hillyar CNC Vertical Mill (G.P.P.)

Abstract: This Graphics Post-Processor (G.P.P.) is written for the Tektronix 4050 Series Graphic Computing System and provides graphic verification of Hillyar CNC Vertical Mill ASCII Numerical Code.

Product features: displays to tool centerline paths in the X Y and Y Z planes, contours in the X Y plane, part boundary by coordinates, user input for location and size of up to six hold down clamps, displays with either individual or multiple tool paths, ability to enter and display tool diameters for drill cycles, capability to being a N/C tape preview with a specified tool, establishment of part zero in the X Y plane by user, magnification of any portion of the X Y plane, automatic printout of most current block of data on program interrupt by user, output of displays to the Tektronix 4662 Digital Plotter.

Minimum 4050 Series Equipment:

16K memory, Data Communications Interface

Other Peripherals Supported:

4662 Plotter

Price: $3,500. License fee includes source code.

Contact: Dr. Jerald A. Griess
Com-Code Corporation
1977 Chevrolet Street
Ypsilanti, Michigan 48197
(313)483-0295

Title: CONTOUR-CT

Abstract: CONTOUR-CT is a program which overlays digitized contour-lines on a rectangular grid. It then computes the percentage of each grid-cell covered by the contour and, thus, the area of the contour.

Originally designed to aid the analysis of digital radar images, the program has been used with topological contour maps and is suitable for applications requiring the analysis of digitized contours or the measurement of an enclosed area. Several non-overlapping contours may be analyzed in a single run. Contour data is read from a standard tape-cartridge data file.

Minimum 4050 Series Equipment:
24K memory.

Other Peripherals Supported:
4662 Plotter

Price: $420.

Contact:
Jerome A Schuh
Computing Techniques, Inc.
Post Office Box 14127
Milwaukee, Wisconsin 53214
(414)257-3307

Title: Digitize-CT

Abstract: Digitize-CT is a program which simplifies the process of digitizing large maps, as well as normal sized materials. One section of a map is digitized; then, by identifying two common points, the next section can be digitized and will automatically be rotated, translated and scaled to merge with the first. This may be repeated as many times as necessary to digitize the entire map.

The digitized input is displayed graphically on the screen, and written to a user specified file at the end of the session. Through the three button cursor, MOVEs, DELETEs, and finally the HALT commands are indicated. Alphanumeric data may be specified by digitizing a point and providing a title for it through the keyboard of the 4050. In addition, the following features are available:

- Redraw the digitized points
- Magnify a section of the screen
- Store the data at any point during the session
- Locate the cursor's current position on the display screen
- Delete or insert arbitrary points in the data array
- Option of storing data in packed or unpacked format
- Count down warning as the data array becomes full
- Automatic scaling of the data

Minimum 4050 Series Equipment:
16K Memory, Graphics Tablet

Price: $490. Includes documentation.

Contact: Jerome A. Schuh
Computing Techniques, Inc.
Post Office Box 14127
Milwaukee, Wisconsin 53214
(414) 257-3307

Title: GRAPH-CT

Abstract: GRAPH-CT is a general-purpose cartesian graphing program which provides features usually found only in large mainframe graphics systems, including:

- automatic/user-controllable scaling with options for best-fit, equal-axis, log-log, and semi-log scaling.
- graph overlays with user-selectable point-symbols, line types, and pen color.
- automatic generation of user-specified legends for identifying graph overlays; legends are written in same color as overlay.
- user-selectable axis-grid format.
- user-specified graph and axis titles.

The package is well-documented and thoroughly tested. GRAPH-CT can be called as a subroutine or run as a separate program to read a datafile. GRAPH-CT is provided with sample calling routines and data.

Minimum 4050 Series Equipment:
24K memory.

Other Peripherals Supported:
4662 Plotter.

Price: $340. Includes documentation

Contact: Jerome A. Schuh
Computing Techniques, Inc.
Post Office Box 14127
Milwaukee, Wisconsin 53214
(414)257-3307

Title: COMpac 1013. Stresses and Deflection in Flat Rectangular Plates under Normal Pressure

Abstract: Interactive program, with graphics, demanding no special computer language knowledge from the user. Provides stresses and deflections at critical locations in a rectangular plate with specified rotational and in-plane edge restraints under uniform normal loading. Results provided as plots of stress and deflection against a chosen dimension or other design variable. Results also provided numerically. Alternatively, gives maximum plate thickness corresponding to user-specified maximum stress of deflection. (Available on Cartridge with User's Manual, the relevant ESDU Data Item giving the technical basis for the program and an inquiry service, as COMpac 1013).

Minimum 4050 Series Equipment:
16K memory, 4631 Hard Copy Unit

Other Peripherals Supported:
4662, 4663 Plotters

Price: $500 U.S. Annual License Fee. Includes revision service.

Contact:
Mr. W. Wardman
Engineering Sciences Data Unit
251/9 Regent Street
London WIR 7AD
England
(01)437-4894

or
Engineering Sciences Data Unit
Suite 1037
733 15th Street N.W.
Washington, D.C. 20005
(202)638-0055

Title: COMpac 6015. Aerodynamic Center of Wing Fuselage Combinations.

Abstract: Interactive program, with graphics, demanding no special computer language knowledge from the user. Normal execution sequence is: input overall aircraft dimensions, shown on graphic sketch, in response to prompts. Output: sketch redrawn to scale. Input: detailed dimensions of wing; output: relevant non-dimensional parameters and two and three dimensional (isometric) plots of relevant characteristics, aerodynamic center of wing-body combination, illustration of effect of fuselage on center of pressure. (Available on Cartridge, with User's Manual and relevant ESDU Data Items given the technical basis of the program, and an inquiry service as COMpac 6015).

Minimum 4050 Series Equipment:
16K memory, 4631 Hard Copy Unit

Other Peripherals Supported:
4662, 4663 Plotters

Price: $500 U.S. Annual License Fee. Include revision service.

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Engineering Sciences Data Unit
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Engineering Sciences Data Unit
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733 15th Street N.W.
Washington, D.C. 20005
(202)638-0055

Title: COMpac 7004. Fatigue Damage Estimation under Variable Amplitude Loading.

Abstract: Interactive program with graphics, demanding no special computer language knowledge from the user. Based on ESDU's well tried methods of fatigue life estimation, taking account of inelastic behaviour at stress concentrations, this program prompts the user to supply data on the geometry and material of a component, and on the SN curve for notched specimens of the material. A loading program of up to 400 stress levels is entered by keyboard or recalled from tape. The sequence of stresses at the notch root is calculated and displayed graphically. The damage resulting from the first and subsequent applications of the loading program (when the stresses settle into a repeating sequence) is calculated and displayed. (Available on Cartridge, with User's Manual, relevant ESDU Data Items giving the technical basis and an inquiry service as COMpac 7004).

Minimum 4050 Series Equipment:
16K memory, 4631 Hard Copy Unit.

Other Peripherals Supported:
4662, 4663 Plotters

Price: $500 U.S. Annual License Fee. Includes revision service.

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Engineering

Title: COMpac 8018. Pressure Change in the Flow of Two-Phase Mixtures.

Abstract: This interactive program, which requires no special computer knowledge, determines the pressure changes between stations of a pipe or tube carrying two-phase flow. It applies to single-component flows with heat transfer, e.g. steam generating tubes. After entering new data, or recalling and modifying previously used data, the frictional, gravitational and momentum components of pressure gradients are calculated using one or more of several correlations on option. Calculations can be started at inlet or, for choked flow calculations, output and integration is performed along a choice of thermodynamic paths (constant pressure or constant enthalpy). Statistical options are included for risk assessment. (Available on Cartridge, with User's Manual, relevant ESDU Data Items giving the technical basis, and inquiry service as COMpac 8018).

Minimum 4050 Series Equipment:
16K memory, 4631 Hard Copy Unit

Other Peripherals Supported:
4662, 4663 Plotters

Price: $1000 U.S. Annual License Fee. Includes revision service.

Contact:
Mr. W. Wardman
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or
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Suite 1037
733 15th Street N.W.
Washington, D.C. 20005
(202)638-0055

Title: Cross Section End Areas Program

Abstract: This program provides its user the capability to record and modify cross-sections for the purpose of performing earthwork volume calculations. The user may enter data for natural ground and design ground independently with the program calculating daylight and catch points as the data dictate. Alternate design data may also be recorded without a need to re-record natural ground.

The user may define the graphic display of cross sections as desired. The resultant CRT display is scaled and contains labeled axes.

Minimum 4050 Series Equipment:
32K Memory

Price: $1495. Includes documentation.

Contact:
Jim Farnsworth
Farnsworth Computer Systems, Inc.
17331 Norwood Park Place
Tustin, California 92680
(714)832-6967

Title: Interactive Coordinate Geometry

Abstract: This program performs the precise calculations required to produce maps for subdivisions, tracts, water and sewerage systems, roads, cross country traverses and so on. The program is highly interactive and implements more than 40 simple-to-use commands which calculate point locations (single points, parallel lines, curve setting, and traversing), perform traverse adjustments, define figures (subdivision boundaries, lots, etc.), produce graphic displays of selected data, perform area computations, and provide inverse information for points, lines, angles, curves, figures and traverses (open or closed).

Minimum 4050 Series Equipment:
64K Memory

Price: $4325. Includes documentation.

Contact: Jim Farnsworth
Farnsworth Computer Systems, Inc.
17331 Norwood Park Place
Tustin, California 92680
(714)832-6967

Title: Subdivision and Tract Mapping Systems

Abstract: This system of programs contains an interactive coordinate geometry program to perform the precise calculations necessary to produce map point coordinates. The program implements more than 40 simple-to-use commands for calculating points, parallel lines, setting curves, traversing, performing traverse adjustments, define lots and boundaries, produce graphic displays of selected data, perform area calculations, and provide inverse information for points, lines, angles, curves, figures and traverses (open or closed).

This system can produce graphic displays (CRT or plotter) of maps which are fully labeled, including automatic generation of bearings, distances, curve notes, course notes, north arrow, and tabulations. Notes may be placed for curve data in curvilinear fashion. CRT displays employ a set of vector-drawn characters so that text may be presented with its proper orientation.

This system also includes an ASCII text editor program which, although required of this system, can be used stand-alone to maintain text data files (form letters and documentation for example).

Minimum 4050 Series Equipment:
64K Memory (4054 prefered), 4952 Joystick or Cross-hair cursor, 4663 Plotter

Other Peripherals Supported:

Price: $11,325. Includes documentation

Contact:
Jim Farnsworth
Farnsworth Computer Systems, Inc.
17331 Norwood Park Place
Tustin, California 92680
(714)832-6967

Title: Traverse File Program

Abstract: This program provides its user the means of creating, correcting, listing and displaying data files which contain surveying traverse definitions. Traverses may be interdependent if desired. Individual traverses may be altered by adding, deleting or changing sighting data. In each case the traverse is automatically re-computed, listed for verification and displayed at the CRT for visual verification.

Traverse adjustments can be performed and area calculations performed for closed traverses.

Minimum 4050 Series Equipment:
32K Memory

Price: $1855. Includes documentation.

Contact: Jim Farnsworth
Farnsworth Computer Systems, Inc.
17331 Norwood Park Place
Tustin, California 92680
(714)832-6967

Title: Region Mapping System

Abstract: The Region Mapping System is a program system that creates and draws regional (area) maps. Map definition can be done from a plotter or a digitizing pad. Maps are composed of user defined (digitized) Regions which are identified by a Region Number (up to 126 Regions may be defined per Map). Each basic Map is stored as a 128 x 128 grid (several Maps may be concatenated to increase image resolution). Color (or fill density) is assigned by a Region: Color table. This table can be linked to the EDIT Data Base Management system such that data in an EDIT file assigns Color (or density) to an established MAP.

Minimum 4050 Series Equipment:
4052 with 32K memory, 4662 Plotter

Other Peripherals Supported:
Printer, Digitizer, Color Terminal

Price: $650 with EDIT linkage and support; $975 stand-alone. Includes documentation.

Contact: Emmett Coin
Physiologic Corporation
3800 Woodward Avenue, Suite 1028
Detroit, Michigan 48201
(313)831-8800

Title: Simple Handling of Areal Data Expressions (SHADE)

Abstract: Thematic maps for location analysis, sales analysis, territory planning, and economic or environmental studies can be produced easily using this system. Complete facilities are provided for digitizing, editing, data entry, scaling, and the computation of areas, centroids, and ratios. A variety of output map formats are provided. Shaded (choropleth) maps may be filled with lines, cross-hatch, or characters. Clock graphs permit multiple data elements to be presented simultaneously for each area. A facilities location program permits the rapid evaluation of alternative locations for sales offices, warehouses, or other facilities by assigning each polygon area to its closest facility and computing the average travel distance.

Data can be allocated from one map to another overlapping but non-contiguous map by polygon overlaying. This also permits the creation of composite maps containing the combined characteristics of multiple overlapping maps. Overlaying is available only in the disk version of the program.

Minimum 4050 Series Equipment:
32K Memory, 4956 Tablet

Other Peripherals Supported:
4662 and 4663 Plotters, 4631 Printer, 4907 File Manager

Price: $2000 tape version, $4000 disk version. Includes installation.

Contact:
Arthur Unger
Planning Systems
517 Silverado Drive
Lafayette, California 94549
(415)283-5698

Title: SPACEMAN

Abstract: SPACEMAN is a complete, low-cost computer system for any organization which plans and manages large, complex facilities. SPACEMAN stores floor and site plans with furniture or equipment and produces annotated drawings at any scale. The system quickly tabulates floor areas, furniture locations, and office occupancy. It maintains a catalog of standard equipment and building components with data such as manufacturer, part number, cost, and graphic description. SPACEMAN also generates 3D views of office layouts, building exteriors, or site plans from any perspective.

Record the movements of personnel and partitions in large office buildings. Compute areas, summarize occupancy, and produce up-to-date floor plans. Lay out a restaurant, factory, museum, or site using a catalog of standard units. Generate drawings showing special reqirements, such as hookups. Keep track of the location of assets. Produce inventory lists showing location, age, cost, and ID of each item. Rapidly generate wire-frame perspective views of office interiors, building or sites. Examine a proposed facility from any point of view.

For each of these application SPACEMAN brings the convenience, time savings, and rapid response of an interactive graphics computer. Drawings are kept current. Records are consistent and convenient.

Minimum 4050 Series Equipment:

4054 with 64K memory and dynamic graphics option, 4907 File Manager, 4662 Plotter.

Other Peripherals Supported:

4663 Plotter, 4956 Tablet, 4907 Options 30 or 31.

Price: $15,000. With 3D capabilities, $20,000. Includes documentation.

Contact:

Arthur Ungar
Planning Systems
517 Silverado Drive
Lafayette, California 94549
(415)283-5698

Title: Cantilever Retaining Walls (Concrete Block or Tapered)

Abstract: From user inputs of soil conditions and proposed wall parameters, program recommends steel requirements. After user-selection of reinforcement, the program tests the wall for overturn, sliding, uplift or heal, crushing on the soil, bending, shear and whether stirrups or a key is required. If the proposed wall passes these tests, a dimensional drawing is completed. If test failures occur, failure parameters are noted.

Minimum 4050 Series Equipment:
16K memory

Price: $600.

Contact: Gary D. Johnston
J²R Computer Software, Inc
1102 Missouri St.
Fairfield, CA 94533
(707)426-0195

Title: Coordinate Geometry (COGO Plus)

Abstract This coordinate geometry program can be used to calculate any geometrical design that can be done with trigonometry. The user can traverse, inverse, do curve calculations, solve for two unknown distances or bearings, or solve for an unknown distance on one location, then for a bearing on another location. Data can be stored on tape or disk.

Minimum 4050 Series Equipment:
32K memory

Other Peripherals Supported:
4641 Line Printer, 4907 File Manager

Price: $400.

Contact: Gary D. Johnston
J²R Computer Software, Inc
1102 Missouri St.
Fairfield, CA 94533
(707)426-0195

Title: Cut/Fill Program

Abstract: Cut and fill yardages are computed with the prismodal or average end area method. Inputs are field notes or offsets from a base line and finish grade data at each established station. Output is calculations of cut and fill volumes to the printer. Cross-section plots may be drawn to the screen or plotter.

Minimum 4050 Series Equipment:
32K memory

Other Peripherals Supported:
4641 Line Printer, 4907 File Manager, 4956 Graphics Tablet, 4662 or 4663 Plotter, 3653SX Nicolet-Zeta Drum Plotter.

Price: $750. Includes documentation

Contact: Gary D. Johnston
J²R Computer Software, Inc
1102 Missouri St.
Fairfield, CA 94533
(707)426-0195

Title: Hardy-Cross Balancing a Pipeline Network

Abstract: The program balances a pipeline network with any number of loops using the Hardy Cross methods. User inputs are pipeline reference labels, section lengths and diameters and assumed "Q's." Optionally, the Hazen-Williams "C" factor can be entered, and the program run to balance out the "Q." Data may be edited and the program rerun.

Minimum 4050 Series Equipment:
32K memory.

Other Peripherals Supported:
4641 Line Printer, 4907 File Manager

Price: $300. Includes documentation

Contact: Gary D. Johnston
J²R Computer Software, Inc
1102 Missouri St.
Fairfield, CA 94533
(707)426-0195

Title: Land Leveling

Abstract: This program is made available to help the agriculturist get better crop yields by properly grading and irrigating the land. The field is staked at 100-foot intervals and elevations are taken then entered into the 4050-system. The user then inputs the desired slope, soil shrinkage and whether extra dirt is needed for road construction in the field. Benches may be added to minimize dirt movement. The program then calculates and displays the cut or fill required at each stake.

Minimum 4050 Series Equipment:
32K memory.

Other Peripherals Supported:
4641 Printer, 4662 or 4663 Plotter, 3653SX Nicolet-Zeta Drum Plotter.

Price: $2,500. Includes documentation.

Contact: Gary D. Johnston
J²R Computer Software, Inc
1102 Missouri St.
Fairfield, CA 94533
(707)426-0195

Title: Profile Grade

Abstract: This program calculates elevations for roads, pipelines, railroads, bridges—anything where elevations need to be established along a tangent line or vertical curve. Elevations as computed on stationing at desired locations. High or low points are noted. Street names, intersections of streets, and points of compound curves or reverse curves are printed.

Minimum 4050 Series Equipment:
16K memory.

Other Peripherals Supported:
4641 Printer

Price: $300. Includes documentation

Contact: Gary D. Johnston
J²R Computer Software, Inc
1102 Missouri St.
Fairfield, CA 94533
(707)426-0195

Title: Seismic Analysis

Abstract: From geophone data on shock wave velocities, bedrock depths are calculated and displayed.

Minimum 4050 Series Equipment:
32K memory

Other Peripherals Supported:
4662 or 4663 Plotter, 3653SX Nicolet-Zeta Plotter

Price: $600. Includes documentation

Contact: Gary D. Johnston
J²R Computer Software, Inc
1102 Missouri St.
Fairfield, CA 94533
(707)426-0195

Title: Specification Writer

Abstract: This program allows the operator to use the 405X as a word processor for documenting specifications. Information may be added, changed or deleted. Data is stored on tape or disk and may be retrieved by the project name assigned.

Minimum 4050 Series Equipment:
16K memory.

Other Peripherals Supported:
4641 Printer, 4907 File Manager

Price: $200

Contact:
Gary D. Johnston
J²R Computer Software, Inc
1102 Missouri St.
Fairfield, CA 94533
(707)426-0195

Title: Topographic Mapping

Abstract: Plot topographic maps from elevation data. Contours are labeled to user specifications. If grading is desired, the initial finished grade elevation and slope is input. An annotated map displaying both initial and finished contours can be output to the plotter.

Minimum 4050 Series Equipment:
32K memory.

Other Peripherals Supported:
4662 or 4663 Plotter, 3653SX Nicolet-Zeta Plotter

Price: $300

Contact: Gary D. Johnston
J²R Computer Software, Inc
1102 Missouri St.
Fairfield, CA 94533
(707)426-0195

Title: Traverse

Abstract: From keyed-in bearings and distances, coordinates are generated. Information for staking curves is calculated. Error of closure and enclosed area is displayed. Annotated maps may be output on a plotter to any scale. Incorrect entries may be changed. Courses left out may be added. Data is stored on disk or tape.

Minimum 4050 Series Equipment:
32K memory.

Other Peripherals Supported:
4641 Printer, 4907 File Manager, 4662 or 4663 Plotter, 3653SX Nicolet-Zeta Drum Plotter

Price: $1100. Includes documentation.

Contact: Gary D. Johnston
J²R Computer Software, Inc
1102 Missouri St.
Fairfield, CA 94533
(707)426-0195

Title: Event Scheduling System (ESS)

Abstract: ESS is a basic scheduling and charting system. Programs included provide full entry, editing and maintenance facilities for a network data base, network scheduling, network and activity status maintenance, network charting (essentially an arrow diagram), Gantt charts and schedule reports. The Gantt charts and the reports can be produced for the entire network or user specified groupings. The user-defined codes that identify these groups can represent departments, responsibility codes, manpower classifications, etc.

In addition to time periods which involve calendar dates, ESS will accept any unit specified by the user, from nanoseconds to centuries. This allows ESS to be used, to schedule experiments as well as projects.

ESS has a limit of 220 activities for a single network. The network can consist of one or more projects. All chart output is time-scaled. A network schedule can consist of as many as 160 time periods. Each activity in the network has two events (milestones) associated with it. The event dates or times are scheduled by ESS at the earliest possible date or time.

Chart output from ESS can be displayed on the system display screen, a plotter or a display-screen hardcopy device. Report output can be directed to the system display screen, a printer or typewriter device, a display-screen hardcopy device or to a communications port. Multiple copies of any of the outputs are produced on request.

Minimum 4050-Series Equipment:

24K Memory, 4662 or 4663 Plotter, 4641 or 4642 Printer (plus Option 1 or 10 Interface) or 4631 Hard Copy Unit (to replace both printer and plotter if desired).

Other Peripherals Supported:

4051R05 Binary Loader (for 4051), 4924 Cartridge Tape Drive.

Price: $1500. Documentation included. Rentals, post-warranty maintenance agreement, multi-copy discounts available.

Contact:
Leland Sheppard
Sheppard Software Company
1523 Coronach Avenue
Sunnyvale, California 94087
(408)733-8651

Title: Job Cost Accounting

Abstract: This program works by taking employees time cards and keying their job numbers, hours and catagories for what they worked on to any given job, by working up a critical path in the beginning, and then taking the information from the time card. This information can be correlated back to project profits. It can also show if the job is on schedule by scanning all employees that worked on the job, or a given employee for all of his/her time in a week-month-year, or for all employees for the week, month or year.

Minimum 4050 Series Equipment:
32K memory

Other Peripherals Supported:
4907 File Manager, 4641 Line Printer

Price: $500. Includes documentation

Contact: Gary D. Johnston
J²R Computer Software, Inc
1102 Missouri St.
Fairfield, CA 94533
(707)426-0195

Title: Job Order Cost System

Abstract: A user-generated job/project costing system for labor hours accounting.

These programs are used to account for labor hours against individual projects by activity performed.

Features:

- 100 available employee numbers with straight & overtime rates
- 40 activity numbers with straight and overtime rates
- 300 active job numbers at one time
- 60 data files per tape
- Check for valid entry
- Check for balance of productive/non-productive time
- Check to reduce data input errors
- Complete edit of data input plus correction files

Reports Generated:

- Job cost by project
- Work in process
- Daily input audit trail
- Employee number & rates list
- Open-close job numbers
- File directory
- Activity number & rates list

Minimum 4050 Series Equipment:
4052, 4642 Printer

Other Peripherals Supported:
4924 Tape Drive, 4907 File Manager

Price: $1000. On-site installation available at extra cost.

Contact:
S.W. Martin
T.F.C., Inc.
856 Eleventh Street, N.W.
Atlanta, Georgia 30318
(404)873-6337

Title: MicroPERT*

Abstract: MicroPERT 1 is a scheduling and charting system, optionally providing probability calculations on activities on the critical path. This system consists of 18 programs. Programs included provide full entry, editing and maintenance facilities for a network data base, network scheduling, network and activity status maintenance, network charting (essentially an arrow diagram), Gantt charts and schedule reports. The Gantt charts and the reports can be produced for the entire network or for individual departments or responsbility codes.

MicroPERT 2 includes all of the MicroPERT 1 features plus manpower, resource and costing facilities. This system consists of 30 programs. Programs included (in addition to those described for MicroPERT 1) provide facilities for full entry, editing and maintenance of manpower, resource and cost data, and histogram charts, Gantt charts and reports on the manpower, resource and cost data. The charts and reports can be broken down by project, department or responsibility code and by manpower, resource and cost classifications. Cost charting and reporting outputs show estimated versus actual costs. A conflict report is provided which shows where manpower, resource and cost requirements exceed specified limits.

MicroPERT 1 and 2 have a limit of 220 activities for a single network (this limit can be increased if you are using a 4052 or 4054 with optional memory and the disk-based version of MicroPERT 1 or 2). The network can consist of one or more projects. Each activity can have 4 manpower entries and 2 resource entries associated with it. Five cost categories are provided: Manpower, resource, materials, other direct and indirect. Each of these cost categories can be broken down into estimated and actual costs. Actual costs can be divided into paid and committed. Estimated costs can be broken down into estimated-to-date and estimated-to-completion. Each network can have up to 48 manpower classes, 48 resource classes and 20 departments or responsibility codes specified. All chart output is time-scaled. A network schedule can consist of as many as 160 time periods; the time period for the network can be specified as any number of days, weeks, months, quarters or years. Each activity in the network has two events (milestones) associated with it; the event dates can be entered by the user or calculated by MicroPERT. Event dates entered by the user that cannot be scheduled as requested are flagged. As many as 10 of the events contained in each network can be interface events.

Minimum 4050-Series Equipment:

32K Memory, 4051R05 (for 4051 only), 4907 File Manager or 4924 Cartridge Tape Drive, 4662 or 4663 Plotter, 4641 or 4642 Printer (plus Option 1 or 10 Interface) or 4631 Hard Copy Unit) to replace both printer and plotter if desired).

Price: MicroPERT 1 $2500. MicroPERT 2 $5000. Documentation included. Rentals, post-warranty maintenance agreement, multi-copy discounts available.

Contact:
Leland Sheppard
Sheppard Software Company
1523 Coronach Avenue
Sunnyvale, California 94087
(408)733-8651

* MicroPERT is a trademark of Leland C. Sheppard

Title: R341 Genigraphics Software Kit

Abstract: Software provides capability to create camera-ready charts, graphs and copy graphics in color for 35mm film recording. Prepare and store your own title, word and tabular slide art, bar, line, area and log plots for presentations. Created graphic records are sent via tape cartridge or transmitted via data phone to your nearest Genigraphics Service Center for image recording and film processing and mounting. 35mm slides are sent back to you in 24 hours from receipt of your graphic records.

Minimum 4050 Series Equipment:
4051 with 32K memory, 4051R05 Binary Program Loader ROM pack.

Other Peripherals Supported:
VA 3455 modem

Price: $1000 (lease) plus film recording charges

Contact:
Charles P. Venus
Genigraphics
General Electric Company
Electronics Park, P.O. Box 4840
Syracuse, New York 13221
(315)456-2711

Title: Word Processing

Abstract: Features right and left justification, centering, indenting, page numbers and titles. Single or double spacing selectable at print time. The ability to "link" files allows the preparation of documents of arbitrary length. Character search and replacement allow the preparation of "boiler plate" text for contracts, specification, and certificates, with subsequent word substitution producing application-tailored documents. The user definable keys or a joystick or other graphic input device allows operator to point directly to the location of insertions, deletions, or modification. This natural graphic input method eliminates complex command languages and ensures ease of use. The edited text includes command characters for runoff control including indent, center, force pages, and spacing control using simple commands.

Output is to the Tektronix 4662 or 4663 plotter, various line printers (dot matrix or formed character, Qume, Diablo, or Xerox "daisy wheel" printers. Inter-word proportional spacing is supported on the Tektronix plotters and Diablo/Xerox 1600 and 1700 series. Character proportional spacing and boldface print is supported on 1650/1750 series with word processing firmware options.

Equipment Required:

32K Memory

Other Peripherals Supported:

4907 File Manager, 4952 Joystick, custom thumbwheel. Output to plotters or printers listed above.

Price: $450. Includes source code and documentation.

Contact: Leonard G. Barton
Leonard G. Barton Computer Graphics
1248 Juanita Drive
Walnut Creek, California 94595
(415)939-5889

Title: Fingerprint pattern search and retrieval

Abstract: Software system enables maintenance of fingerprint record files containing classifications encoded under Hood-Taylor or similar system. Modus operandi and physical characteristics may be included in encoded form. System as presently configured allows any two alternatives from up to fifteen classifications for each of ten characteristics to be encoded on record files for ten fingers, one M. O. group and one physical characteristics group. Number of permissable classifications can be increased to 127 without increased storage.

Latent print information may contain multiple alternative classifications for a given characteristics, allowing use of poorer quality latent prints.

System will search up to 5000 record prints at a time with search limited to single or multiple fingers under operator command. With appropriate equipment configuration and program modifications this system could accomodate up to 20,000 records. Batch mode search allows efficient use of operator time.

Mimimun 4050 Series Equipment:
32K Memory, 4907 Option 30 or Option 31 (recommended)

Other Peripherals Supported:
With 4050 Options 1 or 10, can drive 3M Models 500 and 600 with PST interface.

Price: $2350. Includes documentation.

Contact: Leonard G. Barton
Leonard G. Barton Computer Graphics
1248 Juanita Drive
Walnut Creek, California 94595
(415)939-5889

Title: Brad's Graphing

Abstract: Graphing programs produced to provide graphically pleasing design while featuring:

- No limit to data points on X or Y axis.
- Bar width and space between bars is user selectable.
- Editing of individual data points plus adding and deleting complete cells (i.e. "1979" deleted, right most cell "1980" added).
- Handling of Null numbers.
- Negative values plotted.
- Comparative and stacking bars with multi-selectable shading and cross hatching.
- Line graphing — 6 styles of line.
- Multiple legend layouts — up to 12 lines of data; or manual layout available for any number of lines.
- Manual or automatic scaling.
- Data Listing
- Tape storage of data.

Minimum 4050 Series Equipment:
4052 (or 4051 with 4051R05 Binary Program Loader ROM), 4662 Plotter.

Price: $500. On-site installation available at extra cost.

Contact:
S.W. Martin
T.F.C., Inc.
856 Eleventh Street, N.W.
Atlanta, Georgia 30318
(404)873-6337

Title: TELEPLOT II

Abstract: TELEPLOT II is a fast, extremely interactive, easy to use, general purpose Cartesian graphing program. TELEPLOT II is completely contained on only one program with no program overlays.

Features include:

—solid, dashed, dotted line plots;

—seven histogram types, as well as stacked and comparative histograms;

—pie charts;

—multiple graphs on one page;

—multiple plots on one graph;

—133 unique point identifiers;

—either user definable key or menu operation;

—solid or dotted grids;

The program is written for either the novice or the experienced 4050 series user. The package includes a complete user's manual that explains basic plot concepts, as well as many advanced uses of the program.

Minimum 4050 Series Equipment:
32K memory

Other Peripherals Supported:
4662 Plotter, 4051R05 Binary Program Loader ROM pack (4051 only)

Price: $350

Contact: Gary L. Turner
Teledyne Water Pik
1730 East Prospect
Fort Collins, Colorado 80525
(303)484-1352

Title: $DEBE

Abstract: $DEBE is a command executive for the 4907 File Manager.

The program prompts you for all information required to execute 25 of the 4907 commands, including time and date setting and display, mounting and dismounting discs, listing directories of libraries or entire discs, error status display, file or library copying or renaming, disc formatting and fast-formatting, disc duplicating and more.

This program is very useful as a means to initialize the system when the power is turned on, and for those utility functions (like creating backup copies of your discs) that may not be convenient to the program elsewhere.

Minimum 4050 Series Equipment:
16K memory, 4907 File Manager

Other Peripherals Supported:
Second and third disc drives for the 4907 File Manager, Option 10 or Option 1, hardcopy device.

Price: $125 for a single copy; facilities license is $625. Prices include first year of maintenance.

Contact:
Leland C. Sheppard
Sheppard Software Company
1523 Coronach Avenue
Sunnyvale, California 94087
(408)733-8651

Title: Documenter-II

Abstract: Documenter-II provides compiler-type output for 4051 Basic programs. Output includes a formatted listing of the program, variable and statement number cross-reference maps and more.

Two documentation features are provided: the first allows a file containing documentation to be printed at the front of a program listing; the second allows comments (from a separate file) to be printed next to each program statement, in the listing.

Three versions are available: Basic-tape input; Disc-4907 input; Extended-tape input. The first two versions accept Basic programs with statement numbers to 16383; the third will handle any statement number. Programs must be stored in ASCII in order to processed by Documenter-II.

Minimum 4050 Series Equipment:
24K memory

Other Peripherals Supported:
4631 Hardcopy, Option 10 Printer, Option 1 Printer, 4662 Plotter on the GPIB, 4907 File Manager.

Price: $400 for a single copy of one version. $550 for a single copy of two versions; $700 for a single copy of all three versions. Facilities licenses start at $2,000. Prices include first year of maintenance.

Contact: Leland C. Sheppard
Sheppard Software Company
1523 Coronach Avenue
Sunnyvale, California 94087
(408)733-8651

Title: EDIT (Easy Data Information Transactor)

Abstract: Easy Data Information Transactor (EDIT) is a data base management system (DBMS) optimized for desktop graphic computers. EDIT supports the definition of a wide range of users' data requirements. EDIT is complete with data entry range checks (selectable), multiple data VIEW support, authorizational control (passwords), encryption, and a powerful reportwriter/search mode that supports format control based on logic and arithmetic tests on the data. Some other important features are: data compaction (no reserved data field lengths maximize memory and storage efficiency); nested data relations within files; "MENU" prompts for concise data entry; 80 primary field definitions per file (each of which can have 80 sub-definitions); direct graphic digitized data entry (from plotter or tablet); easy expansion of file definitions with NO restructuring of existing data since EDIT is a directory driven system. EDIT makes data support easy, fast and efficient.

Miminum 4050 Series Equipment:
32K Memory.

Other Peripherals Supported:
4662 Plotter, 4907 File Manager, 4641 Printer, 4956 Tablet

Price: $1750 (Tape based system). Includes documentation.

Contact: Emmett J. Coin
Physiologic Corporation
3800 Woodward Avenue, Suite 1028
Detroit, Michigan 48201
(313)831-8800

Title: GPIB to IBV11, TEK/DEC Communicator

Abstract: The TEK/DEC Communicator is a Fortran program that makes a PDP 11/03 or 11/23 with an IBV11 card and the RT-11 operating system behave as an intelligent peripheral to a Tektronix 4050. The 4050 primary and secondary addressing conventions are observed (implicit and explicit). Once installed the 4050 can use standard basic commands to access PDP-11 resources (i.e. print @ 10: "Page" ;N—to print on the printing terminal or line printer).

Minimum 4050 Series Equipment:
8K Memory

Price: On request.

Contact: Emmett J. Coin
Physiologic Corporation
3800 Woodward Avenue, Suite 1028
Detroit, Michigan 48201
(313)831-8800

Title: KWIC-Scan

Abstract: KWIC-Scan is a generalized tape-based data entry and retrieval program.

Features include user defined record format and contents; ability to enter, edit, delete, search, list and compress the data base contents. Key-Word-In-Context scanner searches for as many as 4 levels of word or phrase and lists all occurrences. Useful for indexing literature, magazine articles, name and address lists, etc.

Minimum 4050 Series Equipment:
24K memory.

Other Peripherals Supported:
Option 10 or Option 1 printer or 4631 for hardcopy output; 4924 Cartridge Tape Drive for input.

Price: $200 for a single copy; facilities license is $1,000. Prices include first year of maintenance.

Contact:
Leland C. Sheppard
Sheppard Software Company
1523 Coronach Avenue
Sunnyvale, California 94087
(408)733-8651

Title: QSM1*, the Intelligent Sort*

Abstract: This product is a stand-alone sort program for the 4907 File Manager. The program will sort most random binary files to 50,000 records.

The program modifies itself to read and write the file be sorted; no reprogramming is required for each different record format.

The program has a restart facility which can reduce time lost due to power failures, deliberate interruptions, etc., thus allowing more flexibility in scheduling a long running sort. In the event of such an interruption, the program (after being reloaded into the system) will automatically restart at the last phase completed prior to the interruption.

Minimum 4050 Series Equipment:
32K memory, 4907 File Manager, hardcopy output device (e.g., 4631, 4641, etc.)

Other Peripherals Supported:
Second and/or third 4907 disc drive.

Price: $400. For a single copy; facilities license $2,000. Prices include first year of maintenance.

Contact:
Leland C. Sheppard
Sheppard Software Company
1523 Coronach Avenue
Sunnyvale, California 94087
(408)733-8651

* QMSI, the Intelligent Sort, are trademarks of Leland C. Sheppard.

Title: Symbol Expansion and Cross Reference

Abstract: This program is an aid to the development and maintenance of readable programs. The output of this program is a listing with Named Subroutines; Named Branch Locations; Basic Symbols Expanded to Long Form Names; Cross Reference of Symbol Useage; Named Program Location Reference List. With this system it is quite easy to maintain source code when compared to parallel remark systems, since source code may be edited and renumbered at will.

Symbol definitions (corresponding "long form" names) and root entry point names may be placed in files separate from the program. In overlayed systems the various root entry points may be named. Branches to RETURN statements are labeled as such. FOR-NEXT loops are appropriately indented.

Use of this system can lead to better structure in code, since a "top down" subroutine call structure becomes readable without constant reference to the called locations. The use of "long form" names for both symbols and subroutines greatly enhances the readability of the listing. The cross reference facility reduces the likelihood of symbol naming conflicts.

The listing may be in either of two forms, mixed long and short form or long form only. The mixed form is useful for program development, showing the long form names (in boldface) and the short form name. The long form name only suppresses the short form symbols for which long form names are declared.

Equipment Required:
32K memory

Other Peripherals Supported:
4907 Mass Storage Module, any printer with backspace.

Price: $150. Includes source code.

Contact: Leonard G. Barton
Leonard G. Barton Computer Graphics
1248 Juanita Drive
Walnut Creek, California 94595
(415)939-5889

Submitted By:

Leonard G. Barton
Leonard G. Barton Computer Graphics
1248 Juanita Drive
Walnut Creek, California 94595
(415)939-5889

Abstract: Consulting and custom programming services are offered in the San Francisco and Pacific Southwest area. Areas of expertise include business, engineering, and graphic systems. Recent achievments include the complete development of an extensive business system on Tektronix 4050 series equipment, including inventory management, accounts receivable, invoicing, bill of materials processing, and computer aided design and cost estimation.

Hourly rates are on a sliding scale depending on volume of work. Complete jobs will also be bid at fixed price in many cases.

Qualifications include fourteen years experience in computer software design and programming and a B.S. degree in Mathematics.

Submitted By:

Roger Chan
37-18 28 Street
Long Island, New York 11101
(212)759-3830

Abstract: Software development services on Tektronix equipment, including testing, documentation and interfacing with other equipment.

Submitted By:

Emmett J. Coin
Physiologic Corporation
3800 Woodward Avenue, Suite 1028
Detroit, Michigan 48201
(313)831-8800

Abstract: Consultant services for Tektronix 4050 and PDP-11 hardware environments, software design for special applications involving real-time data collection and graphical presentation, statistical analysis and graphics reporting, EDIT data base management for desktop computers, and associated applications packages for office management, medical research involvement, and digitizing map graphics.

Submitted By:

Jim Farnsworth
Farnsworth Computer Systems, Inc
17331 Norwood Park Place
Tustin, California 92680
(714)832-6967

Abstract: Systems programming and consulting services including design, development, installation and implementation of programs or systems of programs for the Tektronix 4050 Series computers as well as other computers with special expertise in hardware and software interfacing of 4054 Series computers into mini-computer operating environments (Data General Multi-User Operating System Environment in particular).

Special areas of expertise include interactive graphics systems, automated mapping and drafting, cadastral mapping and other civil enginering applications, and financial accounting systems

Submitted By:

Dr. J. Rosenbaum
J. Rosenbaum Associates, Inc.
P.O. Box 8625 Westhampton Station
Richmond, Virginia 23226
(804)288-5477

Abstract: Provides custom-designed software in the areas of engineering graphics and drafting systems, numerical and mathematical software, and NC machine software (including graphics) for technical and general business applications.

Submitted By:

Jerome A. Schuh
Computing Techniques, Inc.
Post Office Box 14127
Milwaukee, Wisconsin 53214
(414)257-3307

Abstract: COMPUTING TECHNIQUES, INC., provides short- and long-term consulting and programming in a variety of application areas including: statistical/graphical analysis, numerical modeling, business and scientific data-handling inter-computer communications, timesharing and networking, system support of operating systems, utilities, and compilers.

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Submitted By:

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