Software

HANDBOOK

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digital™

Software Product Group

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A postage-paid reader's comments card is included on the last page of this handbook. Your comments will assist us in preparing future documentation.

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INTRODUCTION

The *Software Handbook* is a compact guide that contains descriptions of all software products available from Digital Equipment Corporation. The *Software Handbook* is an invaluable resource for DIGITAL customers planning an initial software purchase, or altering or expanding software requirements for an existing system. This volume includes software for all DIGITAL systems, including VAX systems, PDP-11 systems, and the wide variety of desktop computers.

The software listed is available for purchase through DIGITAL, and is supported by an array of DIGITAL software services. Providing one-stop shopping for your total solution, DIGITAL can simplify your selection and purchasing process. Whether off-the-shelf or customized, DIGITAL will ensure that your software selection meets your business needs.

Software products differ in their hardware requirements. Additionally, some software products require other software to work. For further information regarding proper installation of your software applications, and for hardware requirements, you can either call the Technical Support Hot-Line at 1-800-343-4040, contact your local DIGITAL sales office, or call 1-800-DIGITAL.

A WIDE RANGE OF SOFTWARE SERVICES

You can rely on DIGITAL for a wide range of services in the selection, design, and implementation of your choice of software, from operating systems to application products.

DIGITAL's Professional Software Services (PSS) - DIGITAL's PSS integrates tools and technology to supply and deliver solutions to meet customer needs. Offerings such as planning and design services, custom software development, startup and orientation services, user implementation services, performance and capacity planning, and migration and conversion services are important keys to solving the specific problems of customers in a wide range of businesses and industries. For more information, contact your local DIGITAL software manager or sales representative to discuss consulting services, or call 1-800-DIGITAL.

Customized Business Software Services (CBS) - An off-the-shelf product may not meet your requirements. DIGITAL will customize an existing software product, or develop a product to suit your specific needs. Contact your local DIGITAL software manager or sales representative at your local DIGITAL sales office or call 1-800-DIGITAL.

DIGITAL's Software Product Services (SPS) - Supporting software applications is vital to ensuring maximum performance. SPS offers several levels of support including:

- Update Kits - The latest product enhancements.
- Telephone Support - A 24-hour-a-day, 365-days-a-year hot-line support staffed by DIGITAL software experts.
- Back-up and Disaster Recovery Service - Continuous 24-hour emergency processing of critical applications at computer facilities other than the customer's.

For more information, contact your local DIGITAL software manager or sales representative at your local DIGITAL sales office.

HOW TO USE THIS HANDBOOK

Each entry contains a synopsis of the product, the operating system on which it runs, a software product description number, plus keywords that quickly define the product's function, along with applications and price information.

There are four easy methods of finding information in the *Software Handbook*:

- Contents - Lists the industries or generic disciplines.
- Keyword-Cross-Reference Index - Lists the products alphabetically according to keywords in the description.
- Application/Operating System Index - Lists each application area and operating system.
- Alphabetical Index - Lists all software packages in alphabetical order.

The Fall/Winter 1986 edition of the *Software Handbook* has added an SPD - Model Number Chart, which allows you to quickly locate the order number for a software product. This chart lists SPD number, software product name, and model part number. See page 369 for more information.

Entry Format

A sample entry will include the following items:

① VAXset (VAX Software Engineering Tools)
② SPD Number: 27.07
③ Operating System: VMS, MicroVMS
④ Keywords: Application development
Development tools
Programming tools
Source code control
⑤ Description:

The VAXset (VAX Software Engineering Tools) is comprised of five component products:

- VAX Language-Sensitive Editor
- VAX Performance and Coverage Analyzer
- VAX DEC/CMS
- VAX DEC/MMS
- VAX DEC/Test Manager

⑥ Price: $23,080

Entry Explanation

These items will provide the following information:

① Software Title - A product name.

② SPD Number - The number associated with the specific product description.

③ Operating System - List operating systems on which the software product runs.

④ Keywords - Quickly defines a software product's function.

⑤ Descriptions - Explains software features and capabilities.

⑥ Price - Range of prices, includes all the systems that the product runs on.

PERIODIC PAYMENT LICENSE FOR SOFTWARE

If you are looking for a way to reduce the budget strain of system purchases, allow DIGITAL to be of assistance. DIGITAL is offering Periodic Payment Licenses for VAX 8200, VAX 8300, VAX 8500, VAX 8600, VAX 8650, VAX 8800, and all DIGITAL-engineered compatible software.

Choosing the Periodic Payment Plan allows you to lower the initial cash outlay for your system. This gives greater flexibility in meeting your software needs in some of the following ways:

- The software products you need at the time of system purchase are now affordable. This payment plan allows you to obtain the necessary software without the worry of budgetary constraints.
- Future system expansion can be expensed monthly, rather than having to be rebudgeted. This makes add-on software purchasing easier, and reduces the approval process.
- Annual software costs are more predictable and easier to budget.
- Software can be acquired with little financial risk. If the software no longer meets your needs, it can be returned according to the terms of your license.

Obtaining a Periodic Payment License

In order to obtain a Periodic Payment License, you must pay two basic fees:

- Initial License Fee - A one-time fee paid at the beginning of the Periodic Payment License term.
- Periodic Payment License Fee - Periodic payments for the continued use of the product.

A variety of software support services are available to support your software. These services, available from the Software Products Group, range from installation and maintenance to software updates. You can arrange for the service which best meets your needs.

Software media and documentation are ordered separately. License certificates will be issued for each software product purchased. They will be in effect for the duration of use of the product.

Paid-up Software Licenses may still be purchased for VAX 8200, VAX 8300, VAX 8500 VAX 8600, VAX 8650, and VAX 8800 systems. Software for all other systems will be licensed on a one-time paid-up basis.

For more information, contact your local DIGITAL sales office or call 1-800-DIGITAL.

HOW TO ORDER SOFTWARE

The SPD - Model Number Chart provides you with the product part number necessary to place your order. There are several methods of ordering:

- Telephone. For fast, toll-free ordering call DECdirect at 1-800-258-1710. Lines are opened between 8:30 and 8:00 p.m. Eastern Time.
- DIGITAL's Electronic Store. An on-line ordering system, the Electronic Store can be reached by dialing toll-free 1-800-DEC-DEMO (800-332-3366) at 1200/2400 baud from 8:00 a.m. to midnight Eastern Time.
- DIGITAL Representative. Your local DIGITAL sales representative will be glad to help you place your order and give you further information on products and money-saving programs offered in this catalog. For the location of your nearest DIGITAL sales office, dial 1-800-DIGITAL.

OTHER HANDBOOKS (RESOURCES)

DIGITAL publishes a number of software and hardware handbooks that provide a broad range of technical product information. The *Software Handbook* provides basic information on software products that run on DIGITAL's entire line of hardware systems, from desktop computers to top-of-the-line VAX systems. Some other handbooks that may be useful to you include:

PDP-11 Software Handbook - Provides a description of all the PDP-11 operating systems, utilities, and languages available from DIGITAL.

ULTRIX Software Sourcebook - Provides a comprehensive guide to third-party products running on ULTRIX systems.

VAX Software Source Book - A two volume collection of VAX software product descriptions for software products developed by third-party vendors to run on a VAX system.

VAX Hardware Handbook - Provides general and technical information for the VAX hardware systems.

VAX Architectural Handbook - Provides detailed descriptions of the VAX architecture products.

VAX Software Handbook - Describes the software products unique to the utilization of the VAX/VMS operating systems.

VAX/VMS Languages and Tools Software Handbook - A reference guide to the software development products.

DIGITAL is proud to help you find the right software product. The software products listed are available and working in a wide range of businesses. They cover many application areas, from accounts receivable to manufacturing.

Some software products might be just what you need, others might be tailored to suit your needs. Whatever the case, the *Software Handbook* has been designed to provide you with the best software solutions. Your local sales representative can help you purchase DIGITAL software and hardware products, give you information about DIGITAL's role in customizing software and developing a product on a contract basis, order copies of DIGITAL publications, and obtain additional free copies of this book or other DIGITAL Software Source Books. For the location of your nearest DIGITAL sales office, dial 1-800-DIGITAL.

We hope this edition of the *Software Handbook*, and future editions, provide you with an up-to-date listing of DIGITAL's expanding line of software products.

Accounting and Spreadsheets

DIGITAL provides a variety of accounting and spreadsheet products that are designed to meet the operational and reporting needs of diverse businesses. The products offered cover the complete line of DIGITAL computers from single-user personal computers to the multiuser PDP-11 and VAX series.

Accounting

Automated accounting products help businesses improve their cash flow, increase day-to-day operational efficiency, and gain increased management control over business operations.

Several of DIGITAL's accounting products provide excellent fits for specific business segments such as product manufacturing and distribution. DIGITAL's personal computer-based accounting products provide very small businesses with generic "off-the-shelf" solutions. The multiuser PDP-11- and VAX-based accounting products provide significantly more sophisticated features and are appropriate for the small business market. With optional source code, DIGITAL's VAX offerings are ideal when a true "custom" accounting solution is desired.

Spreadsheets

Spreadsheets are perhaps the most widely used software application. Typical users range from executive and managers to engineers, scientists, administrators, and financial analysts.

DIGITAL's spreadsheet portfolio complements this diversity. DIGITAL's offering ranges from single use, basic functionality spreadsheets to sophisticated multiuser spreadsheet products that include integrated graphics, data management, and project scheduling capabilities.

20/20™

SPD Number: D0.04
Operating System: VMS, ULTRIX, ULTRIX-32m, MicroVMS, MS™-DOS, P/OS
Keywords: Personal computing
Spreadsheets
Integrated spreadsheets
Financial analysis

20/20 is a powerful integrated spreadsheet program created by Access Technology, Inc. DIGITAL distributes this product under license from the vendor, and also offers product services. 20/20 integrates these major functions: spreadsheet, business graphics, data management, and text processing.

In addition to "Lotus™-like" functions, 20/20 runs on VMS, MicroVMS, MS-DOS, and P/OS systems. It is the ideal spreadsheet package for organizations that need the same spreadsheet on single user and multiple user DIGITAL systems.

20/20 allows four windows on a screen and can display the spreadsheet together with its graphic counterpart. It also has a goal-seeking capability (recalculate a model toward a given cell value), and supports matrices as large as 1,000 by 1,000 cells.

20/20 contains more than 40 standard functions including financial, math/statistical, trigonometric, and logical operators. It allows easy consolidation of worksheets, and can import/export data and text. Its command file function allows linkage to other programs directly from the spreadsheet.

Trademark: 20/20 is a trademark of Access Technology, Inc.

MS is a trademark of Microsoft Corporation.

Lotus is a trademark of Lotus Development Corporation.

Price: $495 - $10,625

DECalc

SPD Number: 25.79
Operating System: MicroVMS, VMS
Keywords: Accounting
Financial analysis
Spreadsheets

Distribution media: 9-track 1600 bpi magnetic tape, RC25, RK07, RL02, RX50.

VAX DECalc is an interactive applications package for creating, editing, and manipulating the electronic equivalent of an accountant's spreadsheet. VAX DECalc executes in native mode under VAX/VMS and MicroVMS operating systems and drives a VT100- or VT200-series terminal. VAX DECalc is self-teaching, and users need little previous computer experience.

The VAX DECalc spreadsheet consists of a rectangular grid. The maximum theoretical size of the grid is 63 columns by 254 rows; the practical limit, however, depends on available memory and/or storage space. VAX DECalc allows multiple grids to be stored and retrieved, but users can access only one grid at a time.

VAX DECalc also provides commands for grid manipulation. During command input, the user is prompted for any options or suboptions. The user can stop at any point prior to completing entry of the command, leaving the grid unchanged.

The key features of VAX DECalc are its integration capabilities. VAX DECalc can be used with VAX DECgraph; spreadsheet data is loaded from VAX DECalc into VAX DECgraph to be manipulated and plotted as desired. VAX DECalc also integrates with appropriate DCL command language, a user-selected mail facility, a text editor, and DATATRIEVE (for retrieval only).

Price: $680 - $5100

DECalc-PLUS

SPD Number: 27.37
Operating System: VMS, MicroVMS
Keywords: Accounting
Financial analysis
Spreadsheets

Distribution media: 9-track 1600 bpi tape, RX50, RC25, RK07, or RL02.

VAX DECalc-PLUS is a multiuser spreadsheet designed for technical, engineering, and scientific environments. It is a functional superset of DECalc and will work with existing DECalc grids. It is based on DECalc Version 2.2, and will follow all future versions of DECalc.

VAX DECalc-PLUS users can integrate external routines from within the spreadsheet - a first for any spreadsheet. The product includes 55 commonly used mathematical and statistical routines; examples are linear curve fitting, regression analysis, and matrix mathematics. External routines can be written by the user for nearly any purpose, such as accessing a database and inserting the data into the spreadsheet.

VAX DECalc-PLUS adds these new capabilities to the integrated VMS DECalc base which offers easy links to DECgraph, DATATRIEVE, DCL commands, and mail utilities.

Price: $1,800 - $18,000

DECtap Accounts Payable and Purchasing System, Version 1.5

SPD Number: 14.91
Operating System: RSTS, Micro/RSTS
Keywords: Accounting
Accounts payable
Purchasing

The DECtap Accounts Payable and Purchasing System is designed to operate as a standalone administrative procurement system or in conjunction with other DECtap applications.

When used as an administrative procurement system, the DECtap accounts payable and purchasing system will accept purchase requisitions for authorized vendors and print purchase orders. When goods arrive, the system will accept receipt of the merchandise and print receiving reports. When invoices, arrive, they are entered into the accounts payable application. Once entered, they can be selected for payment either by automatic payment selection criteria or by manual selection.

If the DECtap inventory management or the DECtap inventory control application is installed, purchasing will accept automated requisitions from either of these systems. Once an automated requisition is entered into purchasing, it can be made into a purchase order as is, it can be changed and then entered as a purchase order, or it can be deleted.

All of the DECtap applications allow concurrent data entry by multiple users. The number of users concurrently entering data into any given application is limited by the number of terminals on the system.

DECtap software offers a means of adapting certain aspects of the software to meet specific user requirements. This is accomplished through an easy-to-use interactive tailoring facility. The tailoring process involves answering a series of questions which relate to the nature of the customer's business operations.

Price: $2,500

DECtap Accounts Receivable System, Version 1.5

SPD Number: 14.86
Operating System: RSTS, Micro/RSTS
Keywords: Accounting
Accounts receivable
Invoicing
Financial management

The DECtap Accounts Receivable application is designed to handle the customer accounts of a small to medium sized business. The DECtap Accounts Receivable application can be run either as an open item system or as a balance forward system. The system provides for the entry of customer invoice data, maintenance of open items and balances, printing of statements, receipt of cash and other credits, and management reporting.

DECtap software offers a means of adapting certain aspects of the software to meet specific user requirements. This is accomplished through an easy-to-use interactive tailoring facility. The tailoring process involves answering a series of questions which relate to the nature of the customer's business operation.

Price: $2,000

DECtap Base System

SPD Number: 14.87
Operating System: RSTS, Micro/RSTS
Keywords: Interactive
System management
System tailoring
Utilities

The DECtap Base System provides the operating system environment, system management utilities, user utilities, and menus for all DECtap applications. The ability to tailor any DECtap application is based on services provided by the DECtap Base System. The DECtap Base System is required to run any DECtap application.

There are thirteen applications which can be installed with the DECtap Base System.

DECtap software offers a means of adapting certain aspects of the software to meet specific user requirements. This is accomplished through an easy-to-use interactive tailoring facility. The tailoring process involves answering a series of questions which relate to the nature of the customer's business operation.

Features:

- Menu control facility
- Access security facility
- Report writer for defining custom reports
- Mass change facility for manipulating data files
- Disk backup utility
- Tailoring facility
- System control software

Price: $4,000

DECtap Distribution Option, Version 1.5

SPD Number: 14.89
Operating System: RSTS, Micro/RSTS
Keywords: Accounts payable
Accounts receivable
Order management
Inventory
Sales analysis

The DECtap Distribution Option is designed to provide computer support for the distribution of goods. It consists of the DECtap Accounts Receivable application, the DECtap Inventory Control application, the DECtap Order Processing application, and the DECtap Sales Analysis application. The DECtap Distribution Option is aimed primarily at industrial hardgoods distribution and the distribution functions of manufacturing. Support is provided for entry of customer orders, maintenance of inventory, posting sales to customer accounts, receiving payment and performing sales analysis.

The DECtap Distribution Option requires the installation of the DECtap Base System. Several other DECtap applications can optionally be installed with the Distribution Option.

All of the DECtap applications allow concurrent data entry by multiple users. The number of users concurrently entering data into any given application is limited by the number of terminals on the system.

DECtap software offers a means of adapting certain aspects of the software to meet specific user requirements. This is accomplished through an easy-to-use interactive tailoring facility. The tailoring process involves answering a series of questions which relate to the nature of the customer's business operation.

Price: $3,000

DECtap Distribution Total Solution, Version 1.5

SPD Number: 14.90
Operating System: RSTS, Micro/RSTS
Keywords: Accounts payable
Accounts receivable
Fixed assets
General ledger
Inventory
Order management
Purchasing
Sales analysis

The DECtap Distribution Total Solution provides distributors with a complete business solution for quoting, entering, and tracking customer orders, maintaining inventories, maintaining customer accounts, planning, entering, and printing purchase orders, maintaining accounts payable, and posting financial transactions to the general ledger. The DECtap Base System provides utilities and file architecture support for all applications.

The following applications are included in the DECtap Distribution Total Solution:

- DECtap Accounts Receivable
- DECtap Inventory Control
- DECtap Order Processing
- DECtap Sales Analysis
- DECtap Accounts Payable
- DECtap Purchasing
- DECtap General Ledger
- DECtap Fixed Assets

All of the DECtap applications allow concurrent data entry by multiple users. The number of users concurrently entering data into any given application is limited by the number of terminals on the system.

DECtap software offers a means of adapting certain aspects of the software to meet specific user requirements. This is accomplished through an easy-to-use interactive tailoring facility. The tailoring process involves answering a series of questions which relate to the nature of the customer's business operation.

Price: $8,500

DECtap General Ledger and Fixed Assets System

SPD Number: 14.92
Operating System: RSTS, Micro/RSTS
Keywords: Accounting
General ledger
Fixed assets

The DECtap General Ledger and Fixed Assets System is designed to meet the accounting needs of the small to medium sized business. Through the use of an integrated general ledger statement writer, users can create their own financial statements. An integrated allocation system allows the automatic redistribution of account balances to user defined accounts.

All of the DECtap applications allow concurrent data entry by multiple users. The number of users concurrently entering data into any given application is limited by the number of terminals on the system.

DECtap software offers a means of adapting certain aspects of the software to meet specific user requirements. This is accomplished through an easy-to-use interactive tailoring facility. The tailoring process involves answering a series of questions which relate to the nature of the customer's business operation.

The DECtap General Ledger and Fixed Assets System requires the DECtap Base System to operate.

Price: $2,000

DECtap Payroll System, Version 1.5

SPD Number: 14.88
Operating System: RSTS, Micro/RSTS
Keywords: Accounting
Payroll

The DECtap Payroll System has been designed to meet the payroll needs of most small businesses. Through the use of tailoring, the system can be user maintained to compute correct tax deductions for each tax jurisdiction. The DECtap Payroll Application is designed to provide additional functions to a system built with other DECtap applications.

NOTE

The DECtap Base System, the DECtap Distribution Total Solution, or the DECtap Manufacturing Total Solution are required to install the DECtap Payroll Application.

All of the DECtap applications show concurrent data entry by multiple users. The number of users concurrently entering data into any given application is limited by the number of terminals on the system.

DECtap software offers a means of adapting certain aspects of the software to meet specific user requirements. This is accomplished through an easy-to-use interactive tailoring facility. The tailoring process involves answering a series of questions which relate to the nature of the customer's business operation.

Price: $2,000

Digital Accounting System CP/M-80® Accounts Payable, Version 2.0, for the DECmate II

SPD Number: 60.22
Operating System: CP/M®
Keywords: Personal computing
Accounts payable
Office systems

Digital Accounting System CP/M-80 Accounts Payable, Version 2.0 for the DECmate II, written in RM/COBOL™, provide small- and medium-sized businesses with a general accounts payable capability. The system runs as a standalone system, and also as part of an integrated accounting system composed of an Installation/Maintenance Kit and seven separate modules: General Ledger, Payroll, Accounts Payable, Accounts Receivable, Inventory Control, Order Entry, and Sales Analysis. The modules can be purchased either separately or together. With the exception of Order Entry and Sales Analysis, all of the modules can be interfaced with General Ledger or used independently. RM/COBOL Run-Time System is included with the software.

Features:

- Maintains a vendor file and allows for on-line vendor account inquiry; prints a list of vendors
- Allows for new payable transactions
- Prints the following reports: Open Item, Cash Requirements, Accounts Payable Distribution to General Ledger, Vendor Analysis, Checks and Check Register
- Allows flexible payment selection, including partial payments, with pre-check writing report
- Includes password protection, extensive data file integrity checks
- Handles multiple profit centers, and multiple companies
- Provides an interface to the WPS word processing system, and to MULTIPLAN™ spreadsheet software

Trademark: CP/M and CP/M-80 are registered trademarks of Digital Research, Inc.

RM/COBOL is a trademark of Ryan-McFarland Corporation.

MULTIPLAN is a trademark of Microsoft Corporation.

Price: Available upon request

Digital Accounting System CP/M-80® Accounts Receivable, Version 2.0, for the DECmate II

SPD Number: 60.21
Operating System: CP/M®
Keywords: Personal computing
Accounts receivable
Office systems

Digital Accounting System CP/M-80 Accounts Receivable, Version 2.0 for the DECmate II, written in RM/COBOL™ provides small- and medium-sized businesses with a general accounts receivable capability. The system runs as a standalone system and also as part of an integrated accounting system composed of an Installation/Maintenance Kit and seven separate modules: General Ledger, Payroll, Accounts Payable, Accounts Receivable, Inventory Control, Order Entry, and Sales Analysis. The modules can be purchased either separately or together. With the exception of Order Entry and Sales Analysis, all of the modules can be interfaced with General Ledger or used independently. RM/COBOL Run-Time System is included with the software.

Features:

- Handles both balance forward and open item customers
- Maintains both customer and salesman files and prints a list of each file
- Allows for sales, credit memo, cash receipts, and finance charges processing
- Prints customer statements and an aged-trial-balance report and allows for on-line customer account inquiry
- Maintains sales commissions and prints commission reports
- Prints a report showing all distributions from Accounts Receivable to the General Ledger
- Includes password protection, extensive data file integrity checks
- Handles multiple profit centers and multiple companies
- Provides an interface to WPS word processing system and to MULTIPLAN™ spreadsheet software

Trademark: CP/M and CP/M-80 are registered trademarks of Digital Research, Inc.

RM/COBOL is a trademark of Ryan-McFarland Corporation.

MULTIPLAN is a trademark of Microsoft Corporation.

Price: Available upon request

Digital Accounting System CP/M-80® General Ledger, Version 2.0, for the DECmate II

SPD Number: 60.20
Operating System: CP/M®
Keywords: Personal computing
General ledger
Office systems

Digital Accounting System CP/M-80 General Ledger, Version 2.0 for the DECmate II, written in RM/COBOL™, provides small- and medium-sized businesses with a general ledger capability. The system runs as a standalone system and also as part of an integrated accounting system composed of an Installation/Maintenance Kit and seven separate modules: General Ledger, Payroll, Accounts Payable, Accounts Receivable, Inventory Control, Order Entry, and Sales Analysis. The modules can be purchased either separately or together. With the exception of Order Entry and Sales Analysis, all of the modules can be interfaced with General Ledger or used independently. RM/COBOL Run-Time System is included with the software.

Features:

- Maintains a Chart of Accounts and prints a list of accounts; allows for an on-line account inquiry
- Handles multiple profit centers and multiple companies
- Provides an interface to the WPS word processing system and to MULTIPLAN™ spreadsheet software
- Allows for General Journal and Standard Journal transactions
- Prints the following reports: Trial Balance, General Journal Worksheet, Financial Statements in user-defined formats, Comparison, Variance, and Source Cross Reference
- Handles up to 13 accounting periods, and provides year-end closing procedures
- Includes password protection and extensive data file integrity checks
- Contains Standard Journal Entry posting controls

Price: Available upon request

Digital Accounting System CP/M-80® Installation/Maintenance Kit, Version 2.0, For the DECmate II

SPD Number: 60.18
Operating System: CP/M®
Keywords: Personal computing
Computer integrated manufacturing
Inventory management
Office systems

Digital Accounting System CP/M-80 Installation/Maintenance Kit, Version 2.0 for the DECmate II is designed to facilitate the installation and maintenance of Digital Accounting System CP/M-80. The total Digital Accounting System CP/M-80 consists of an Installation/Maintenance kit and seven separate modules: General Ledger, Payroll, Accounts Payable, Accounts Receivable, Inventory Control, Order Entry, and Sales Analysis. The modules can be purchased either separately or together. With the exception of Order Entry and Sales Analysis, all of the modules can be interfaced with General Ledger or used independently. RM/COBOL™ Run-Time System is included with the software.

Features:

- Facilitates the installation of one or multiple Digital Accounting System CP/M-80 modules, either all together or over time
- Defines system maintenance procedures
- Allows unloading and reloading of data files
- Allows users to upgrade their Digital Accounting System, Version 1.0 to Version 2.0
- Allows user to create initial data files, default settings, and system dates, and to backup data files

Trademark: CP/M and CP/M-80 are registered trademarks of Digital Research, Inc.

RM/COBOL is a trademark of Ryan-McFarland Corporation.

Price: Available upon request

Digital Accounting System CP/M-80® Inventory Control, Version 2.0, for the DECmate II

SPD Number: 60.25
Operating System: CP/M®
Keywords: Personal computing
Computer integrated manufacturing
Inventory control
Office systems

Digital Accounting System CP/M-80 Inventory Control, Version 2.0 for the DECmate II to provides small- and medium-sized businesses with a general inventory control capability. The system runs as a standalone system and also as part of an integrated accounting system composed of the Installation/Maintenance Kit and seven separate modules: General Ledger, Payroll, Accounts Payable, Accounts Receivable, Inventory Control, Order Entry, and Sales Analysis. The modules can be purchased either separately or together. With the exception of Order Entry and Sales Analysis, all of the modules can be interfaced with General Ledger or used independently. RM/COBOL™ Run-Time System is included with the software.

Features:

- Maintains inventory items and prints a list of items
- Allows for item receiving and adjustments, credit memos and sales to be entered, edited and posted, with edit list and journal
- Inventory may be costed by any of the following methods: LIFO, FIFO, average cost
- Prints the following reports: Stock Status, Purchasing Advice, Price Lists, Inventory Valuation, and ABC Analysis
- Allows for on-line status checks
- Provides multi-warehouse inventory tracking, flexible procedures for pricing items, and automatic price changes
- Includes password protection, extensive data file integrity checks
- Handles multiple profit centers and multiple companies
- Provides an interface to the WPS word processing system and to MULTIPLAN™ spreadsheet software

Trademark: CP/M and CP/M-80 are registered trademarks of Digital Research, Inc.

RM/COBOL is a trademark of Ryan-McFarland Corporation.

MULTIPLAN is a trademark of Microsoft Corporation.

Price: Available upon request

Digital Accounting System CP/M-80® Payroll, Version 2.0, for the DECmate II

SPD Number: 60.19
Operating System: CP/M®
Keywords: Personal computing
Office systems
Payroll

Digital Accounting System CP/M-80 Payroll, Version 2.0 for the DECmate II, written in RM/COBOL™, provides small- and medium-sized businesses with a general accounts payable capability. The system runs as a standalone system and also as part of an integrated accounting system composed of an Installation/Maintenance Kit and seven separate modules: General Ledger, Payroll, Accounts Payable, Accounts Receivable, Inventory Control, Order Entry, and Sales Analysis. The modules can be purchased either separately or together. With the exception of Order Entry and Sales Analysis, all of the modules can be interfaced with General Ledger or used independently. RM/COBOL Run-Time System is included with the software.

Features:

- Maintains an employee file and prints a list of employees
- Calculates payroll for the following pay frequencies: daily, weekly, bi-weekly, semi-monthly, monthly, quarterly
- Prints the following reports: Worksheet, Payroll Checks and Check Register, Payroll Distribution to the General Ledger, Payroll History Report, Payroll Register, Payroll Register for manual entries, Deduction Register, Quarterly Payroll Register, and W-2s
- Allows entry and editing of attendance data, with edit list and register
- Handles a wide variety of special deductions and earnings
- Allows for the entry of manual adjustment and payroll checks with edit list and register
- Provides for year-end closing
- Includes password protection, extensive data file integrity check
- Handles multiple companies
- Provides an interface to the WPS word processing system and to MULTIPLAN™ spreadsheet

Trademark: CP/M and CP/M-80 are registered trademarks of Digital Research, Inc.

RM/COBOL is a trademark of Ryan-McFarland Corporation.

MULTIPLAN is a trademark of Microsoft Corporation.

Price: Available upon request

Digital Accounting System CP/M-80® Sales Analysis, Version 2.0, for the DECmate II

SPD Number: 60.24
Operating System: CP/M®
Keywords: Personal computing
Office systems
Sales analysis

Digital Accounting System CP/M-80 Sales Analysis, Version 2.0 for the DECmate II provides small- and medium-sized businesses with the ability to generate reports for sales analysis. The system does not run independently. It requires Digital Accounting System CP/M-80 Accounts Receivable, Version 2.0 for the DECmate II and/or Digital Accounting System CP/M-80 Inventory Control, Version 2.0 for the DECmate II. The total system consists of an Installation/Maintenance Kit and seven separate modules: General Ledger, Payroll, Accounts Payable, Accounts Receivable, Inventory Control, Order Entry, and Sales Analysis. The modules can be purchased either separately or together. With the exception of Order Entry and Sales Analysis, all of the modules can be interfaced with General Ledger or used independently. RM/COBOL™ Run-Time System is included with the software.

Features:

- Provides analysis reports by customer, customer type, customer sales volume, responsible salesperson, state, item, item category, and item sales volume
- Handles multiple profit centers and multiple companies
- Provides an interface to the WPS word processing system and to the MULTIPLAN™ spreadsheet software

Trademark: CP/M and CP/M-80 are registered trademarks of Digital Research, Inc.

RM/COBOL is a trademark of Ryan-McFarland Corporation.

MULTIPLAN is a trademark of Microsoft Corporation.

Price: Available upon request

Horizon Spreadsheet™

SPD Number: A4.48
Operating System: ULTRIX-32, ULTRIX-32m
Keywords: Personal computing
Spreadsheets
ULTRIX

Horizon Spreadsheet is an easy-to-learn electronic worksheet for ULTRIX users who need an interactive tool for budgeting, forecasting, and planning tasks.

Horizon Spreadsheet offers a 256- by 256-cell spreadsheet workspace, many built-in functions such as scientific calculations and date arithmetic, many formatting options, multiple window displays, and a step-by-step user's guide.

DIGITAL distributes this product under license from Laticorp, Inc.

Trademark: Horizon Spreadsheet is a trademark of Horizon Software Systems, Inc.

Price: $500 - $2,000

KSH® Accounting Software for the VAX

SPD Number: X0.15
Operating System: VMS
Keywords: Accounts payable
Accounts receivable
Financial reporting
General ledger
Inventory
Invoicing
Order entry
Sales analysis

KSH Accounting Software for VAX systems consists of the five comprehensive packages: KSH General Ledger and Financial Reporting; KSH Accounts Receivable; KSH Accounts Payable; KSH Order Entry, Inventory, and Sales Analysis; and KSH Time Recording, Costing, and Billing.

Written with DIGITAL's VAX computer in mind, the KSH accounting applications operate in an on-line, interactive mode, and are designed to make the most efficient use of computer resources. The availability of source code makes KSH the most ideal choice for customers desiring flexibility to change software as their business needs change.

Trademark: KSH is a registered trademark of KSH Systems, Inc.

Price: $5,000 - $24,000

KSH® Accounting Software for the VAX – Accounts Payable

SPD Number: X0.18
Operating System: VMS, MicroVMS
Keywords: Accounts payable

The KSH Accounts Payable package operates in an on-line, interactive mode. The package can run independently or it can be integrated with the KSH General Ledger and Financial Reporting package to allow a single point of entry for disbursement and expense transactions.

The KSH Accounts Payable package maintains supplied information and provides a wide variety of tools to analyze and plan for cash disbursements. Based on flexible selection criteria, reports can be generated to help the user decide who to pay, how much to pay, and when to pay. Payment checks and remittance advice are automatically generated.

This product can be customized to meet customer-specific needs. Its open architecture, familiar COBOL base, and the availability of source code allow it to be modified by either the customer or DIGITAL software specialists at a very reasonable cost.

The KSH Accounts Payable package can be purchased individually or as part of the KSH Distribution System (MicroVAX only).

Trademark: KSH is a registered trademark of KSH Systems, Inc.

Price: $5000 - $7000

KSH® Accounting Software for the VAX – Accounts Receivable

SPD Number: X0.17
Operating System: VMS, MicroVMS
Keywords: Accounts receivable
Customer statements

The KSH Accounts Receivable package operates in an on-line, interactive mode. The package can run independently or it can be integrated with the KSH Order Entry, Inventory, and Sales Analysis package to provide a single point of entry for customer transactions.

The KSH Accounts Receivable package is used to generate customer statements, remittance slips, and mailing labels, as well as provide an aging of customer accounts. Additionally, this package supplies information for identifying customer payment patterns, for projecting cash inflows, and for analyzing sales.

This product can be customized to meet customer-specific needs. Its open architecture, familiar COBOL base, and the availability of source code allow this package to be modified by either the customer or DIGITAL software specialists at a very reasonable cost.

The KSH Accounts Receivable package can be purchased individually or as part of the KSH Distribution System (MicroVAX only).

Trademark: KSH is a registered trademark of KSH Systems, Inc.

Price: $5000 - $7000

KSH® Accounting Software for the VAX - General Ledger and Financial Reporting

SPD Number: X0.19
Operating System: VMS, MicroVMS
Keywords: Accounting
General ledger
Financial reporting
Report generator

The KSH General Ledger and Financial Reporting package operates in an on-line, interactive mode. The package can run independently or it can be integrated with the KSH Accounts Payable package.

The free-form account structure allows the package to be implemented without changes to an existing general ledger account coding scheme. The package's report writer creates and modifies balance sheets, income statements, and cost center reports. Consolidations of inconsistent account codes are performed via the report writer. Reports and other inquiries can be run at any time during the month and are always current up to the last transaction entered.

This product can be customized to meet customer-specific needs. Its open architecture, familiar COBOL base, and the availability of source code allow it to be modified by either the customer or DIGITAL software specialists at a very reasonable cost.

Trademark: KSH is a registered trademark of KSH Systems, Inc.

Price: $10,000 - $14,000

KSH® Accounting Software for the VAX - MicroVAX Distribution System

SPD Number: X0.21
Operating System: MicroVMS
Keywords: Accounts payable
Accounts receivable
General ledger
Financial reporting
Order entry
Invoicing
Inventory
Sales analysis

The KSH Distribution System is a reduced-price, limited number of users, bundled offering of four KSH packages:

- General Ledger and Financial Reporting
- Accounts Receivable
- Accounts Payable
- Order Entry, Inventory, Sales Analysis

This bundled system, like the individual packages, operates in an on-line, interactive mode. All packages contain the complete set of features and functions which are found in each package purchased separately.

This system is limited to the MicroVAX. Depending on the number of users, the customer can save either $20,000 or $10,000 on the price of the individual packages purchased separately.

Like all KSH packages, this system can be customized to meet customer-specific needs. Its open architecture, familiar COBOL base, and the availability of source code allow it to be modified by the customer or DIGITAL software specialist at a very reasonable cost.

Trademark: KSH is a registered trademark of KSH Systems, Inc.

Price: $15,000 - $25,000

KSH® Accounting Software for the VAX – Order Entry, Inventory, Sales Analysis

SPD Number: X0.22
Operating System: VMS, MicroVMS
Keywords: Order entry
Inventory
Invoicing
Sales analysis

The KSH Order Entry, Inventory, Sales Analysis package is an integrated set of programs designed to record, fill, invoice, and report on customer orders as well as record inventory movements and provide a comprehensive analysis of sales. Sales order acknowledgments, picking lists, invoices, credit memos, associated inventory, and sales analysis reports are produced.

The package can run independently or it can be integrated with the KSH Accounts Receivable package. When the two packages are linked they allow the simultaneous posting of sales transactions. By reducing multiple points of data entry, the combined packages help to improve operational efficiency.

The package handles an unlimited number of warehouses and offers extensive sales analysis by customer, product, warehouse location, and sales representative.

This product can be customized to meet customer-specific needs. Its open architecture, familiar COBOL base, and the availability of source code allow it to be modified by either the customer or DIGITAL software specialists at a very reasonable cost.

The KSH Order Entry, Inventory, Sales Analysis package can be purchased individually or as part of the KSH Distribution System (MicroVAX only).

Trademark: KSH is a registered trademark of KSH Systems, Inc.

Price: $15,000 – $21,000

KSH® Accounting Software for the VAX – Time Recording, Costing, Billing

SPD Number: X0.20
Operating System: VMS, MicroVMS
Keywords: Client engagement accounting
Project accounting
Professional services billing

The KSH Time Recording, Costing, Billing package is designed for use by professional organizations to record employee hours and other expenses associated with specific projects and clients. Detailed reporting

is provided by client and project, allowing the grouping by project type or manager responsible. Standard work rates can be stored and automatically applied against hours worked.

The package provides for progressive billings, employee utilization accounting, and project/client status. The powerful inquiry abilities allow for a wide variety of user-selected reporting.

- This product can easily be customized to meet customer-specific needs. Its open architecture, familiar COBOL base, and the availability of source code allow it to be modified by the customer or DIGITAL software specialists at a very reasonable cost.

Trademark: KSH is a registered trademark of KSH Systems, Inc.

Price: $5000 - $7000

Lotus 1-2-3™

SPD Number: A2.44
Operating System: MS™-DOS
Keywords: Personal computing
Database management
Financial modeling
Graphics
Integrated software
Spreadsheets

Lotus 1-2-3 is an integrated personal computing software package combining an electronic worksheet (2048 rows by 256 columns) with information management capabilities and presentation graphics. Lotus 1-2-3, written in assembly code for high performance, gives continuous, in-context, multi-level HELP. Lotus 1-2-3 contains the following four additional programs:

- A graph program
- A translate utility program
- A file manager
- A tutor program

The Lotus 1-2-3 user interface permits selection of commands and functions from menus by cursor positioning or by typed entry of the appropriate letter designators.

Features:

- Implements major use of the Rainbow 100 keyboard, including the HELP and DO keys, function keys, editing keys, and numeric keypad
- Displays graphics on color monitor using up to six colors
- Displays graphics on monochrome monitor

Trademark: Lotus 1-2-3 is a trademark of Lotus Development Corporation.

MS is a trademark of Microsoft Corporation.

Price: $495

Multi Journal Accounting™ Accounts/Payable

SPD Number: A1.78
Operating System: CP/M®, MS™-DOS, P/OS
Keywords: Personal computing
Accounts payable
Financial management
Accounting
Sales analysis

Features:

- Vendor master file maintenance - Includes name, address, discount terms, interest terms, vendor's customer number, telephone number, class, YTD sales total, and default G/L account.
- Repeating transactions with an expiration count allows for automatic updating.
- Aging criteria is user-definable.
- Complete facilities for preparing vendor disbursement checks with partial payments allowed. Payments can be selected based on dollar amount or by individual invoice. Discounts may be applied automatically or may be overridden if necessary.
- Discounting may be based on a percentage, such as 15% of total, dated discounts such as 2% 10 Net 30, and dollar discount amounts.
- Printed reports include: vendor master file, vendor activity and aging report, cash requirements report, transaction reports, cash disbursement preview, and purchase journal report.

Trademark: Multi Journal Accounting is a trademark of Prodata, Inc.

CP/M is a registered trademark of Digital Research, Inc.

MS is a trademark of Microsoft Corporation.

Price: $600

Multi Journal Accounting™ Accounts/Receivable

SPD Number: A1.77
Operating System: CP/M®, MS™-DOS, P/OS
Keywords: Personal computing
Accounting
Financial management
Accounts receivable
Sales analysis

Features include:

- Customer master file maintenance - Includes name, address, credit limit, YTD and MTD sales, salesman code, last payment date, last payment amount, phone number and tax status.
- Maintains both Balance Forward and Open Item customer types.
- Aging criteria and finance charge rates are user-definable.
- Recurring transactions with an expiration count allow for automatic updating.
- Customer statements may be printed individually or for the entire master file.
- Printed reports include: customer master file, transaction report, sales commission report, customer credit report, sales analysis, aging report, sales journal report, cash receipts worksheet, deposit slips, and cash receipts journal.

Trademark: Multi Journal Accounting is a trademark of Prodata, Inc.

CP/M is a registered trademark of Digital Research, Inc.

MS is a trademark of Microsoft Corporation.

Price: $600

Multi Journal Accounting™ General Ledger, Version 5.2

SPD Number: A4.03
Operating System: MS™-DOS, CP/M®, P/OS
Keywords: Accounting
Personal computing
Financial management
General ledger

The General Ledger system is a multi-company accounting package providing the capability to maintain complete records of business activity. This allows up-to-date financial statements and reports to be prepared as desired. The software package includes the BASIC Run-Time Library from Microsoft, Corporation.

Reports:

- General Journal Transaction Reports
- General Ledger Report
- General Ledger Summary Report
- Trial Balance Worksheet
- Budget Comparison Report
- Income Statements
- Balance Sheet
- Loan Amortization Schedules
- System Status and Specification

Price: $600

Multi Journal Accounting™ Order Entry/Inventory, Version 5.2

SPD Number: A4.18
Operating System: CP/M®, MS™-DOS, P/OS
Keywords: Personal computing
Accounting
Financial management
Inventory management
Invoicing
Shipping

The Multi Journal Accounting (MJA) Order/Inventory system is a multi-company accounting package developed to provide the capability to maintain a list of inventory items, to process customer orders and control the shipping/invoicing function and to maintain backorders by customer and by product. Designed as one module in the Multi Journal Accounting system (MJA), the inventory system can operate as an independent subsystem or integrated to provide automatic updating via the accounts receivable and accounts payable systems. The software package includes the BASIC Run-Time Library from Microsoft Corporation.

Reports:

- Inventory Reference Report
- Re-order Advice Report
- Inventory Aging Report
- Receiving Report
- Backorder by Customer

- Backorder by Product
- Inventory Valuation
- Price Book Report
- Picking Tickets

Trademark: Multi Journal Accounting is a trademark of Prodata, Inc.

CP/M is a registered trademark of Digital Research, Inc.

MS is a trademark of Microsoft Corporation.

Price: $600

Multi Journal Accounting™ Payroll and Personnel, Version 5.2

SPD Number: A1.76
Operating System: CP/M®, MS™-DOS, P/OS
Keywords: Accounting
Personal computing
Financial management
Payroll
Personnel

The Payroll and Personnel system is a multi-company accounting package developed to provide the capability to maintain a roster of active and inactive employee pay records along with a breakdown of payroll costs by job or department. Designed as one module in the Multi Journal Accounting (MJA) system, the payroll system can operate as an independent subsidiary or integrated with the general ledger system. This software package includes the BASIC Run-Time Library from Microsoft Corporation.

Trademark: Multi Journal Accounting is a trademark of Prodata, Inc.

CP/M is a registered trademark of Digital Research, Inc.

MS is a trademark of Microsoft Corporation.

Price: $600

MULTIPLAN™

SPD Number: A0.94
Operating System: CP/M®, MS™-DOS
Keywords: Personal computing
Financial analysis
Budgets
Financial management
Spreadsheets

MULTIPLAN is a powerful problem-solving tool that enables a wide range of planning, budgeting, forecasting, and analytical tasks to be performed on Rainbow 100 or DECmate II system. Microsoft Corporation developed MULTIPLAN with advanced second generation features; it is easy to use and has extended capabilities to make even the most complicated analytical tasks manageable.

Features:

- MULTIPLAN's spreadsheet linking gives the user control over large, multi-model analytical planning tasks. This capability lets the user develop highly detailed plans by combining several separate worksheets.
- The user can assign useful names - not just grid coordinates - to the elements of the worksheet.
- MULTIPLAN displays up to 132 columns. It also has extensive screen subdivision capabilities (up to eight windows).
- MULTIPLAN is compatible with the Select-86™ and many other word processing programs on the Rainbow 100 computer.

This product runs on both the Rainbow and DECmate systems.

Trademark: MULTIPLAN and MS are trademarks of Microsoft Corporation.

Select-86 is a trademark of Select Information Systems, Inc.

CP/M is a registered trademark of Digital Research, Inc.

Price: $275

MULTIPLAN™ – Microsoft® Applications for the VAXmate

SPD Number: X0.35
Operating System: MS™-DOS V3.10
Keywords: Spreadsheets
Financial modeling
Analysis
Budgets
VAXmate

The MULTIPLAN application can be installed on a VAXmate, MicroVAX, or VAX server. VAXmates attached to the server may then share a single copy of the application, providing the customer has purchased the appropriate license. This saves the inconvenience of loading the application off a floppy if no hard disk is present and assures each user of having the latest version of the application.

MULTIPLAN supports spreadsheets of 4,095 rows by 255 columns. Linking spreadsheets together provides the ability to rollup financial tables into a single summary sheet; adjustments are made automatically on related worksheets whenever changes are made on a primary worksheet.

MULTIPLAN also includes a powerful reporting facility and the ability to exchange data with programs in DIF™ and SYLK formats.

Trademark: Microsoft is a registered trademark of Microsoft Corporation.

MS and MULTIPLAN are trademarks of Microsoft Corporation.

DIF is a trademark of Software Arts, Inc.

Price: $195

Multiuser Digital Accounting System, Version 2.0

SPD Number: 18.25
Operating System: Micro/RSX
Keywords: Accounting
Inventory
Payroll
Sales analysis

This general accounting package for small business consists of a starter kit and seven integrated modules. The starter kit can be installed as a standalone system or as a Micro/RSX-based application on the A-to-Z integrated system. The kit supports up to 99 companies and provides record and file locking and a series of installation and maintenance menus.

The General Ledger module supports multiple profit centers and up to 13 accounting periods; allows the user to enter, edit, and print the chart of accounts; and allows on-line account inquiry.

The Accounts Receivable module supports both open-item and balance-forward customers and allows the user to enter, edit, and print customer and salesperson files, sales transactions, and cash receipts.

The Accounts Payable module allows full, partial, or deferred payments and calculates due dates, discount dates, and discount amounts.

The Payroll module supports both hourly and salaried employees with six pay frequencies, supports a variety of special deductions and earnings, and prints payroll checks.

The Inventory Control module supports standard, average, LIFO, and FIFO inventory valuation methods, provides flexible pricing structure and automatic price changes, and prints the item file and more.

The Order Entry module supports 1- and 2-step order processing, calculates commissions and up to three sales tax rates for each transaction, and supports drop shipments, partial shipments, and back orders.

The Sales Analysis module integrates with Accounts Receivable to print sales analysis reports by customer, customer type, customer sales volume, responsible salesperson, and state. Integrated with Inventory Control, the module prints sales analysis reports by item, item category, and item sales volume.

Price: Available upon request

PACS™ PLUS/EZLOG Cluster Option, Version 4.0

SPD Number: X0.43
Operating System: VMS
Keywords: Data management
Accounting
Resouce management
Billing

PACS PLUS is a software system for resource management and chargeback at VAX/VMS computer facilities. PACS PLUS offers advanced resource accounting and chargeback capabilities plus innovative features for multi-level reporting and data management. The software reports on the use disk storage, line printer pages/lines, user software, foreign devices, and much more. It allows the system manager to assign charges for system use, define billing periods, set up flexible rate schedules, create custom or standard invoices, and establish user budgeting.

PACS PLUS provides complete data management. It includes a full screen forms representation of the accounting information. Keypad and cursor control functions make retrieval and editing of record data quick and easy.

The optional EZLOG function provides project-based resource accounting. This also provides a second level of password protection.

PACS PLUS is self-installing and operation is automatic and under the control of the VAX system manager through VAX command file procedures.

PACS PLUS will run on a single VAX, from the MicroVAX to the 8800, as well as in a network or a VAXcluster.

Trademark: PACS is a trademark of Signal Technology, Inc.

Price: Available upon request

SuperCalc®3, Version 1.0

SPD Number: X0.02
Operating System: MS™-DOS
Keywords: Personal computing
Integrated spreadsheets
Spreadsheets

Distribution media: RX50

This integrated spreadsheet for microcomputers is advertised as one of the fastest and most efficient. Features include:

- Spreadsheet
- Data management
- Text editing and letter-writing
- Graphics
- Data interchange

The user can display a grid area and a graph on the screen at the same time. Eight graph types are available, with many selections of font type and colors, automatic scaling, and single keystroke plotting. Intelligent memory management (blank cells are not tracked) allows a grid size of 63 by 254.

The product interfaces with Lotus 1-2-3™ (DIF), dBASE II®, VisiCalc®, and MULTIPLAN™ (DIF). Text editing includes insert and delete options, type-over error correction, and "spillover" beyond column borders.

Trademark: SuperCalc is a registered trademark of Computer Associates International, Inc.

Lotus 1-2-3 is a trademark of Lotus Development Corporation.

dBASE II is a registered trademark of ASHTON-TATE.

VisiCalc is a registered trademark of VisiCorp, Inc.

MULTIPLAN is a trademark of Microsoft Corporation.

DIGITAL distributes this product under license from Computer Associates, Inc.

Price: $395

Symphony™

SPD Number: A4.45
Operating System: MS™-DOS
Keywords: Personal computing
Database management
Financial modeling
Graphics
Spreadsheets
Word processing

Symphony integrates spreadsheet, graphics, data management, text processing and communications into a single product designed for a wide range of interactive planning, budgeting, forecasting, and other decision support applications.

Symphony follows the integrated software product, 1-2-3™, also distributed by DIGITAL for the Rainbow. Symphony offers an upgrade path to existing 1-2-3 owners.

Features:

- Spreadsheet
- Graphics
- Data Management
- Text Processing
- Command Language

Trademark: Symphony and 1-2-3 are trademarks of Lotus Development Corporation.

MS is a trademark of Microsoft Corporation.

Price: $695

VAX Xway, Version 1.0

SPD Number: 27.36
Operating System: VMS, MicroVMS
Keywords: Data interchange
Spreadsheets

Distribution media: 9-track 1600 bpi tape, RX50, RC25, RK07, or RL02.

VAX Xway is a storage format conversion application designed for use with spreadsheets, database managers, and any other application which produces or accepts data in one of the supported storage formats. It performs the conversion of constant data (numbers and text) between all supported formats, and also performs the conversion of spreadsheet models between selected formats which store relationships/formulas and constant data.

The supported storage formats are:

- Industry standard:
  - DIF - Data Interchange Format (used by products such as VisiCalc® and SuperCalc®)
  - SYLK - Symbolic Link File Format (used by products such as MULTIPLAN™)
  - WKS - Worksheet Format (used by products such as Lotus 1-2-3™)
- VAX DECalc dump files
- ASCII tabular data with a specified separator between each data element
- ASCII data which can be described as fields, with fields being identified by starting location, length, and data type

VAX Xway has an easy-to-use interactive interface which leads a user through the steps to convert data from one storage format to another.

Features:

- The user can request that only the constant data contained in the input file be converted when converting one from model storage format to another. Any formulas contained in the input file are not converted.
- The user can chose to have the data relocated to another location in the output file for any of the supported storage formats.
- The user can chose to have the data in the input file transposed when it is written in the new format to the output file for any of the supported storage formats.

Price: $600 - $9,000

Application Development Tools and Languages

DIGITAL's full array of programming languages and program development tools improve and enhance programming and organizational productivity. The highly integrated VAX/VMS system provides a consistent environment for the design, implementation, testing, and support of software programs. There are 16 high level programming languages available, including VAX ADA, VAX BASIC, VAX BLISS, VAX C, VAX COBOL, VAX PASCAL, VAX PL/I, and VAX SCAN.

The integration of the VMS operating system, VAX language and tools, and program development utilities is made possible by the common architecture to which all these products adhere. The VAX Common Language Environment is based on standards that ensure that new VAX product offerings are compatible with the existing products within this environment.

Key among the tools is VAXset, a package of tools that provides library management for code development, module management for system building, a powerful editor, a performance analyzer for tuning applications, and a manager for testing applications. Together these tools offer software developers an easy and manageable means for developing and maintaining applications.

AAF01/VMS Subroutine Library, Version 1.2

SPD Number: 27.49
Operating System: VMS, MicroVMS
Keywords: Programming tools
Subroutine library

The AAF01/VMS Subroutine Library provides the user with a simple FORTRAN interface to the AAF01-A Digital-to-Analog Converter.

The AAF01-A is a high-speed multichannel Analog-to-Digital Converter connected to the UBA (VAX UNIBUS adapter) through the DRE11-C or to Q-bus (MicroVAX II) via the DRQ11-C.

The device has 16 single-ended analog output channels. Triggering of conversions by the AAF01-A can be initiated by either the internal programmable clock or by a user-supplied external clock. For each conversion, the channel number and the control mode are contained in one of 1024 entries in the AAF01-A control table, which can then perform a large, fixed sequence of conversion operations.

In addition to the subroutine calls contained in the Subroutine Library, the package includes a set of indirect command procedures to generate a Control Word Table and to link the Control Table, the Subroutine Library, and a user program. The package also contains example and test programs used for calibrating the system.

Price: Available upon request

ADF01/VMS Subroutine Library, Version 3.1

SPD Number: 26.61
Operating System: VMS, MicroVMS
Keywords: Subroutine library
Development tools
Application development

The ADF01/VMS Subroutine Library provides the user with a simple FORTRAN interface to the ADF01-B Analog-to-Digital Converter.

The ADF01-B is a high-speed multichannel Analog-to-Digital Converter connected to the UBA (VAX UNIBUS adapter) through the DRE11-C or to Q-bus (MicroVAX II) via the DRQ11-C.

The device has 16 single-ended or 8 differential input channels. With the AMF01-A multiplexer board the number of channels can be extended to 64 single-ended or 32 differential channels.

Triggering of conversions by the ADF01-B can be initiated by either the internal programmable clock or by a user-supplied external clock. For each conversion, the gain and channel number are contained in one of 1024 entries in the ADF01-B control table, which can then perform a large, fixed sequence of conversion operations.

In addition to the subroutine calls contained in the Subroutine Library, the package includes a set of command files to generate a Control Word Table, link the Control Table and User Program, and build the ADF01/VMS Subroutine Library. The package also contains programs to calibrate the system and to run a DAC-ADC loop-back test.

Price: Available upon request

APL

SPD Number: 25.31
Operating System: MicroVMS, VMS
Keywords: Debugging
Programming tools

Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TU58 DECtape II cartridge.

APL (A Programming Language) is a concise programming language that simplifies the handling of numeric and character data organized as lists and tables. A native-mode, shareable, reentrant interpreter, VAX APL provides a built-in function editor, debugging aids, system communication facilities, grouping, and a file system. VAX APL can execute lines of code immediately or can store it for later execution. The interpreter uses virtual memory to create a workspace that can expand dynamically as needed and uses the VAX floating-point and character string instructions. VAX APL can be used for a wide range of applications.

Price: Available upon request

A-to-Z Developer's Kit for MicroPDP-11, Version 2.0

SPD Number: 18.20
Operating System: A-to-Z Base System for MicroPDP-11
Keywords: Communications
Utilities

The A-to-Z Developer's Kit for MicroPDP-11 systems is designed to allow the creation or migration of software packages targeted for the A-to-Z Integrated System. The A-to-Z Developer's Kit allows the user to create and modify menus for user-written applications with all the functions of the menus used in other A-to-Z components.

Features:

- A-to-Z Integrated System menu compiler for ease of menu creation and modification
- A-to-Z Integrated System menu subroutines for user applications
- A-to-Z Integrated System menu driver source for developers who wish to modify or create their own driver
- Utility for creation, modification, and printing of data dictionaries, allowing access to the application data through A-to-Z Data Inquiry for PDP-11 (at least at V1.5)
- Definition and suggested use of the A-to-Z Integrated System function keys
- Definition and requirements for the creation of A-to-Z Integrated System installation
- Definition and use of the callable interface for A-to-Z Integrated System software routines.

Price: $995

A-to-Z Developer's Kit for MicroVAX, Version 2.0

SPD Number: 28.14
Operating System: MicroVMS
Keywords: A-to-Z
Communications
Utilities

The A-to-Z Developer's Kit for MicroVAX systems is designed to allow the creation or migration of software packages targeted for the A-to-Z Integrated System. The A-to-Z Integrated System is a set of A-to-Z software products that are integrated to provide a total computing solution for the small business. The A-to-Z Developer's Kit allows the user to create and modify menus for user-written applications with all the functions of the menus used in other A-to-Z components.

NOTE
A-to-Z does not support VT100 series terminals.

Features:

- A-to-Z Integrated System menu compiler for ease of menu creation and modification
- A-to-Z Integrated System menu subroutines for user applications
- A-to-Z Integrated System menu driver source for developers who wish to modify or create their own driver
- Definition and suggested use of the A-to-Z Integrated System function keys

- Definition and requirements for the creation of A-to-Z Integrated System installation
- Definition and use of the callable interface for A-to-Z Integrated System software routines.

Price: $995

A-to-Z Developer's Kit for UNIBUS PDP-11, Version 2.0

SPD Number: 13.40
Operating System: RSX, Micro/RSX
Keywords: A-to-Z
Communications
Utilities

The A-to-Z Developer's Kit for UNIBUS PDP-11 is designed to allow the creation or migration of software packages targeted for the A-to-Z Integrated System (a system running the A-to-Z product set). The A-to-Z Developer's Kit for UNIBUS PDP-11 provides the necessary software routines to create and maintain A-to-Z Integrated System data dictionaries. The A-to-Z Developer's Kit for UNIBUS PDP-11 allows the user to create and modify menus for user-written applications with all the functionality of the menus used in other A-to-Z components.

Features:

- Utility for creation, modification, and printing of data dictionaries, allowing access to the application data through A-to-Z Data Inquiry for PDP-11 (at least at Version 1.5).
- Data types supported by A-to-Z Data Inquiry for PDP-11 include binary, zoned decimal, packed decimal, leading signed decimal, trailing signed decimal, and alphanumeric.
- Definition and suggested use of the A-to-Z Integrated System function keys.
- Definition and requirements for the creation of A-to-Z Integrated System installation files
- Definition and use of the callable interface for A-to-Z Integrated System software routines

Price: $995

BASIC

SPD Number: 25.36
Operating System: MicroVMS, VMS
Keywords: Application development
Compilers
Debugging
Programming tools

Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TU58 DECtape II cartridge.

VAX BASIC is an interactive shareable language processor for the VAX/VMS and MicroVMS operating systems and takes full advantage of the VAX floating-point, decimal, and character instructions. VAX BASIC provides a high-performance program-development environment for both applications development and timesharing by generating in-line VAX native-mode instructions. The interactivity of immediate-mode program debugging is combined with the power of a structured programming language integrated with key components of the VAX Information Architecture.

Price: Available upon request

BASIC-10, Version 17F; BASIC-20, Version 17.0

SPD Number: 30.07
Operating System: TOPS-10, TOPS-20
Keywords: Concatenation
Languages

BASIC-10 and BASIC-20 are extended BASIC implementations. They have been written as reentrant, shareable code so that simultaneous users on a DECsystem-10 or DECSYSTEM-20 can share a single copy of the BASIC system.

Extended BASIC features include:

- The "Print Using" statement, including the leading asterisk, floating dollar sign, and imbedded comma features.
- Sequential-access file handling for both data and text.
- Random-access capability for numeric files and string files.
- Up to nine files open simultaneously.

Price: $1,200

BASIC-11/RT-11, Version 2.1

SPD Number: 12.05
Operating System: CTS-300, RT-11
Keywords: Development tools
Language enhancers
Programming tools

Memory required: 32 Kbytes. Distribution media: 9-track 800 bpi magnetic tape, RK05, RL01, RL02, RX01, RX02, RX50.

BASIC, a conversational programming language developed at Dartmouth College, uses simple English-like statements and familiar mathematical notations to perform operations. BASIC-11/RT-11 is an incremental, interactive, interpretive compiler operating under the RT-11 operating system.

The compiler features commands for saving, editing, running, and retrieving BASIC programs; support for real, integer, double-precision, and string data types; immediate-mode statements for debugging and desk calculator usage; sequential data storage, using the RT-11 file system; string capability, including string arrays and functions; disk virtual arrays for string, integer, and real data types; chaining with COMMON to accommodate large programs; a CALL facility for invoking assembly language subroutines, using a PDP-11 FORTRAN-compatible call interface; and formatted output, using the PRINT USING statement.

Price: Available upon request

BASIC-PLUS-2 for IAS, Version 1.6

SPD Number: 14.13
Operating System: IAS
Keywords: Language enhancers
Programming tools

Distribution media: 9-track 800 bpi magnetic tape, RK05, RK06, RL01, RL02.

BASIC, a conversational programming language developed at Dartmouth College, uses simple English-like statements and familiar mathematical notations to perform operations; BASIC-PLUS-2 is a superset of Dartmouth BASIC. The BASIC-PLUS-2 language processor is composed of a compiler and an object-time system/library. BASIC-PLUS-2 also features terminal-format files; virtual arrays; RMS I/O; extensive string-manipulation functions; matrix package handling operations; long variable names; IF...THEN...ELSE multistatements; ON ERROR condition handlers; statement modifiers IF, WHILE, UNLESS, FOR; user-defined functions; multistatement lines and mul-

tiline statements; and external subprograms SUB, CALL, CHAIN, (via RQST Directive), and COMMON. BASIC-PLUS-2 uses the full, printable ASCII character set for its alphabet.

The BASIC-PLUS-2 compiler produces an object module or a macro source program. The compiler checks each program line for syntax errors and returns an appropriate message if an error is found. The user can then correct and recompile the program. Program compilations result in an object module that can be linked and executed or a macro source program that can be assembled and linked at the operating system command level.

BASIC-PLUS-2 provides a traceback mechanism that traces the path of program execution when an error occurs in a function or subprogram.

A version of this product is available for the VAX computer.

Price: Available upon request

BASIC-PLUS-2 for RSTS/E, Version 2.2

SPD Number: 14.54
Operating System: RSTS
Keywords: Compilers
Debugging
Language enhancers

Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RK06, RK07, RL01, RL02.

This extended BASIC compiler runs under the RSTS/E operating system and takes full advantage of the PDP-11 floating-point and integer instruction sets. BASIC-PLUS-2 provides a high-performance environment for applications development and timesharing by generating threaded code instructions and combines immediate mode with the power of a structured programming language.

In addition, BASIC-PLUS-2 provides BASIC programming support environment; compile-time directives; structured programming constructs; EXTERNAL statement; language subsets and subset flaggers; exception handling (ON ERROR) for main and subprograms; multiline statements and multistatement lines; program segmentation; symbolic names for control characters, BEL, BS, HT, LF, VT, FF, CR, SO, SI, ESC, and DEL; definition of user-defined program constants through DECLARE CONSTANT; a BASIC symbolic debugger, allowing inspection and alteration of program variables; file organizations and access methods; dynamic record definition and variable allocation through

MAP DYNAMIC; extended report formatting capabilities; arrays up to eight dimensions, declared at run time; matrix manipulation capabilities; and compatibility with key RSTS/E BASIC-PLUS features.

Price: $1200 - $3000

BASIC-PLUS-2 for RSX-11M and RSX-11M-PLUS, Version 2.2

SPD Number: 14.11
Operating System: RSX
Keywords: Compilers
Language enhancers
Microprocessor development
Programming tools

Distribution media: 9-track 800/1600 bpi magnetic tape, RK06, RK07, RL01, RL02.

This extended BASIC compiler for the RSX-11M and RSX-11M-PLUS operating systems takes full advantage of the PDP-11 floating-point and integer instructions. Run-time operations are supported on RSX-11S.

PDP-11 BASIC-PLUS-2 provides a high-performance environment for applications development and timesharing by generating threaded code instructions and combines immediate mode with the power of a structured programming language. In addition, BASIC-PLUS-2 provides a BASIC programming support environment; compile-time directives; structured programming constructs; EXTERNAL statements; language subsets and subset flaggers; exception handling (ONERROR) for main and subprograms; multiline statements and multistatement lines; program segmentation; implicit or explicit data typing; symbolic names for control characters; definition of user-defined program constants through DECLARE CONSTANT; a BASIC symbolic debugger, allowing inspection and alteration of program variables; file organizations and access methods; dynamic record definition and variable allocation through MAP DYNAMIC; extended report formatting capabilities; arrays up to eight dimensions, declared at run time; and matrix-manipulation capabilities.

Price: $1200

BASIC-PLUS/RT-11 on the Professional, Version 3.0

SPD Number: 40.39
Operating System: RT-11
Keywords: Application development
Debugging
Development tools
Interpreters
Microprocessor development
Programming tools

BASIC is a conversational programming language developed at Dartmouth College that uses simple English language-like statements and familiar mathematical notations to perform operations.

BASIC-PLUS/RT-11 on the Professional is an interactive, incremental compiler operating under the RT-11 operating system.

The BASIC-PLUS language processor is comprised of a compiler and run-time system. The BASIC-PLUS compiler produces a compact pseudo code that is interpreted by the run-time system. Being an incremental compiler, it checks each program line for syntax errors and immediately returns an appropriate message if an error is found. The user can then correct the line (if necessary) by retyping it.

Price: $395

BLISS-32 Implementation Language

SPD Number: 25.12
Operating System: MicroVMS, VMS
Keywords: Compilers
Cross-compilers
Language enhancers
Programming tools

Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TU58 DECtape II cartridge.

A high-level systems implementation language for VAX, BLISS-32 supports development of modular software according to structured programming concepts by providing an advanced set of language features. BLISS-32 provides access to most of the hardware features of the VAX systems to facilitate programming of real-time and/or hardware-dependent applications. BLISS-32 is especially intended for the development of operating systems, compilers, run-time system components, database file systems, communications software, and utilities for use on a VAX hardware system.

Price: Available upon request

BLISS-36 Implementation Language, Version 4.1

SPD Number: 07.22
Operating System: TOPS-10, TOPS-20
Keywords: Compilers
Languages
Development tools
Programming tools

BLISS-36 is a high-level, systems implementation language for DECsystem-10 and DECSYSTEM-20 systems. BLISS-36 supports development of modular software according to structured programming concepts by providing an advanced set of language features. BLISS-36 provides access to most of the hardware features of the DECsystem-10 and DECSYSTEM-20 systems to facilitate programming of time-critical and/or hardware-dependent applications. BLISS-36 is intended for the development of operating systems, compilers, run-time components, database and file systems, communications software, and utilities used with DECsystem-10 and DECSYSTEM-20 hardware systems.

The BLISS-36 compiler runs in native mode under the TOPS-10 operating system and TOPS-20 system software package. It translates BLISS-36 source programs into relocatable object modules that can be linked for execution. BLISS-36 compiled code is optimized for execution efficiency.

Features:

- A set of common features, known as "Common BLISS," can be used in a transportable manner to develop programs that will run on VAX or PDP-11 architecture.
- Declarations are specialized for use with DECsystem-10 and DECSYSTEM-20 systems. They provide precise means to tailor BLISS-36 programs to the special capabilities of the DECsystem-10 and DECSYSTEM-20 environments.
- The BLISS-36 compiler performs global and local optimization to produce efficient and compact generated code.
- The compiler will optionally check for certain language usage that, while technically correct, is likely to be a coding error.
- The BLISS-36 compiler optionally produces a listing file that shows the source text compiled and the generated code in a format that closely resembles a MACRO assembly listing.

Price: $7,600

C

SPD Number: 25.38
Operating System: VMS
Keywords: Compilers
Development tools
VNX

Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TU58 DECtape II cartridge.

VAX C is an extended implementation of the C programming language developed at Bell Laboratories. The VAX C compiler runs under the VAX/VMS and MicroVMS operating systems and generates optimized, shareable, and position-independent code.

As a native-mode VAX language, VAX C is integrated into the VMS Common Language Environment. All VAX system services are thus available to programs written in VAX C. VAX C supports VAX Record Management Services (RMS), including sequential, relative, and indexed file organizations and associated access methods, in addition to the stream file access conventional among most C implementations. VAX C programs can invoke, as functions, modules written in other VAX languages. Additionally, programs written in VAX C generate complete debug and traceback records for use with the VAX Symbolic Debugger. The debugger allows the C programmer to set breakpoints, examine and modify the contents of user variables, and selectively halt or continue program execution.

Price: Available upon request

COBOL

SPD Number: 25.04
Operating System: MicroVMS, VMS
Keywords: Compilers
Programming tools

Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TK50, TU58 DECtape II cartridge.

VAX COBOL, a high-level language for business data processing, runs under the VAX/VMS and MicroVMS operating systems, taking full advantage of the system facilities and the VAX Information Architecture. This version is based on the 1974 ANSI COBOL standard X3.23-1974 and includes features planned for the next COBOL standard.

VAX COBOL shares some common syntax with COBOL-81/RSTS/E and COBOL-81/RSX and includes a COBOL-81 subset flagger. This version also has DIGITAL extensions to COBOL, including screen handling at the source language level.

The VAX COBOL product contains a COBOL compiler, the REFORMAT Utility, and the PDP-11 COBOL Version 4.4 to Translator Utility.

Price: Available upon request

COBOL, Version 4.4

SPD Number: 12.40
Operating System: RSX
Keywords: Language enhancers
Development tools
Programming tools

COBOL is a high-level language for business data processing. The PDP-11 COBOL compiler is based on specifications published by the American National Standards Institute (ANSI) in the document *American National Standard COBOL*, X3.23-1974. PDP-11 COBOL has been certified as a FIPS-PUB 21-1 low-intermediate level COBOL compiler, and runs under the IAS, RSTS/E, RSX-11M, and RSX-11M-PLUS operating systems.

The PDP-11 COBOL language processor is composed of a compiler and an Object Time System/Library. The PDP-11 COBOL compiler produces an object module from a source program. The compiler checks each program line for syntax errors and returns an appropriate message if an error is found. The user can then correct the program and compile it. Program compilations result in an object module that can be linked and executed at the operating system command level.

PDP-11 COBOL allows the user to write subprograms in both COBOL and MACRO-11 assembly languages. Those subprograms are accessed with the CALL statement.

PDP-11 COBOL file I/O operations are controlled through the RMS data management software. That method of record I/O supports sequential, relative, and indexed file organizations.

PDP-11 COBOL includes:

- An interactive debugger that allows a user to set and remove breakpoints and to examine and change program variables
- Support for the Commercial Instruction Set (CIS)
- CBLMRG, which merges Skeleton Overlay Descriptor Language (SKL) files, generated by COBOL compilations into a single Overlay Descriptor Language (ODL) file

- RFRMT, which converts PDP-11 terminal-format COBOL programs into conventional ANSI COBOL program format.

A version of this product is available for the VAX computer.

Price: Available upon request

COBOL-81/RSTS/E, Version 2.0

SPD Number: 13.16
Operating System: RSTS
Keywords: Compilers
Language enhancers
Programming tools

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02.

This high-level language for business data processing operates under the RSTS/E operating system. COBOL-81/RSTS/E, based on the 1974 ANSI COBOL Standard, is designed to meet the low-intermediate level requirements of the U.S. government, as described in FIPS PUB 21-1. Many of the individual modules are designed to meet the high-level requirements. COBOL-81/RSTS/E shares some common syntax with VAX COBOL and includes various DIGITAL extensions to COBOL, including screen handling at the source language level.

A version of this product is available for the VAX computer.

Price: $1200 - $3000

COBOL-81/RSX, Version 2.0

SPD Number: 14.26
Operating System: RSX
Keywords: Compilers
Language enhancers
Programming tools

This high-level language for business data processing operates under the RSX-11M and RSX-11M-PLUS operating systems. COBOL-81/RSX, based on the 1974 ANSI COBOL Standard, is designed to meet the low-intermediate level requirements of the U.S. Government, as described in FIPS PUB21-1. Many of the individual modules are designed to meet the high-level requirements. COBOL-81/RSX shares some common syntax with VAX COBOL and includes various DIGITAL extensions to COBOL, including screen handling at the source language level.

VAX COBOL and COBOL-81 share many features that are implemented with the same syntax and semantics. Thus, code developed using COBOL-81 may be migrated to VAX COBOL, and a VAX/VMS system may be used to develop code that will eventually be compiled using COBOL-81.

COBOL-81 consists of a compiler and an Object Time System/Library. The compiler produces an object module from a source program. The compiler can produce a source listing with embedded diagnostics indicating the line and position of a source-code error, a data-name map, a procedure-name map, and a cross-reference listing in alphabetic order.

Price: Available upon request

CORAL 66

SPD Number: 25.37
Operating System: VMS
Keywords: Compilers
Process control
Programming tools
Real time

Distribution media: RX01, TU58 DECtape II disk cartridge.

This high-level block-structured programming language is the standard, general-purpose language prescribed by the British government for real-time and process control applications. CORAL 66 is defined in BS 5905, British standard specification for computer programming language CORAL 66. The VAX CORAL 66 compiler operates under VAX/VMS and is implemented in accordance with the British standard.

The language is designed to replace assembly-level programming in modern industrial and commercial applications. CORAL 66 is used for long-life products requiring ease of maintenance and flexibility.

Price: $7500

CORAL 66, Version 4.0

SPD Number: 14.56
Operating System: RSX
Keywords: Process control
Programming tools
Real time

PDP-11 CORAL 66 is a high-level block-structured programming language. The standard general-purpose language prescribed by the British government for real-time and process-control applications, CORAL 66 is defined in BS 5905, British standard specification for computer programming language CORAL 66.

The language is designed to replace assembly-level programming in modern industrial and commercial applications. CORAL is used for long-life products, which require ease of maintenance and flexibility.

FORTRAN and MACRO-11 subroutines may be incorporated in CORAL tasks, provided certain coding conventions are followed.

The PDP-11 CORAL 66 compiler operates under the RSX-11M and RSX-11M-PLUS operating systems and is implemented in accordance with the British standard.

A version of this product is available for the VAX computer.

Price: Available upon request

CORAL 66/VAX to RSX Cross-Compiler

SPD Number: 25.69
Operating System: VMS
Keywords: Cross-compilers
Language enhancers
Process control
Real time

Distribution media: RX01, TU58 DECtape II cartridge.

CORAL 66, a high-level block-structured programming language, is the standard general-purpose language prescribed by the British government for real-time and process-control applications. CORAL 66 is defined in BS 5905, British standard specification for computer programming language CORAL 66. The language, designed to replace assembly-level programming in modern industrial and commercial applications, is used for long-life products requiring ease of maintenance and flexibility.

The CORAL 66/VAX to RSX Cross-Compiler operates under the VAX/VMS operating system. Code generated by the cross-compiler and linked under VAX/VMS with the appropriate OTS supplied with this product may be run under VAX/VMS in compatibility mode or on any

PDP-11 running RSX-11M V4.0 or RSX-11M-PLUS V2.0. Code generated by the cross-compiler may also be transferred to any PDP-11 running RSX-11M V4.0 or RSX-11M-PLUS V2.0 and linked with the PDP-11 V4.0 OTS to run on that PDP-11.

FORTRAN and MACRO-11 subroutines may be incorporated in CORAL tasks, provided that certain coding conventions are followed.

Price: $4050

DEC/CMS (Code Management System)

SPD Number: 25.52
Operating System: MicroVMS, VMS
Keywords: Application development
Development tools
File management
Programming tools
Source code control
Text management
VNX

VAX DEC/CMS, a program librarian for software development and evolution, is comprised of a set of commands enabling software developers to manage the files of an ongoing project. DEC/CMS stores ASCII text files in a project library; retrieves previous file generations; obtains a report of file modification, including when, why, and by whom the modification was made; determines the origin of each line of a file, either as an annotated listing or as comments in the file; manages concurrent modifications and merges separately developed modifications; stores related files together as a single element; and relates the generation of one element to the corresponding generations of other elements.

Price: $8,675

DEC/MMS (Module Management System)

SPD Number: 26.03
Operating System: MicroVMS, VMS
Keywords: Application development
Development tools
Programming tools
VNX

Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TU58 DECtape II cartridge.

This software tool enhances programmer productivity by determining what components in a software system have changed and by rebuilding the system in an optimal way. VAX DEC/MMS determines which modules need to be recompiled and ensures that the software system is recompiled and linked with all the latest changes. VAX DEC/MMS can interact with VAX DEC/CMS (Code Management System) to provide an enhanced software development package.

Price: $2,100

DEC/Shell

SPD Number: 26.69
Operating System: MicroVMS, VMS
Keywords: Application development
Development tools
Languages
Programming tools
Utilities
VNX

Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TU58 DECtape II cartridge.

The VAX DEC/Shell command interpreter and programming language provides an interface to VMS similar to that on a UNIX™ Version 7 system. DEC/Shell consists of a command line interface and the shell script language. When combined with common UNIX utilities, those two components provide a program development environment familiar to users experienced with the UNIX Version 7 system.

VAX DEC/Shell includes environment variables, pipes, user-definable search paths for command execution, UNIX file name syntax, input and output redirection to and from files, commands and utilities similar to those on a UNIX system, string substitution, structured constructs, modification of a command's environment, and a Shell run-time library. In addition, VAX/DEC Shell provides access to DCL commands and VMS programs.

Trademark: UNIX is a trademark of AT&T Bell Laboratories.

Price: $4,446

DEC/Test Manager, Version 2.0

SPD Number: 26.68
Operating System: MicroVMS, VMS
Keywords: Application development
Development tools
Diagnostics
Programming tools

Distribution media: 9-track 1600 bpi magnetic tape, RL02, RX01, RX50, TU58 DECtape II cartridge.

VAX DEC/Test Manager helps test software during development and maintenance. This tool automates the organization, execution, and review of tests and allows several developers to use one set of tests at the same time.

VAX DEC/Test Manager helps as you implement assigned tasks, integrate code, and maintain software. This tool is based on the concept of regression testing. Established software v-tests are run, and the results are compared against expected results. If the two do not agree, the software is considered to have "regressed," indicating that it may contain errors.

With VAX DEC/Test Manager, you can describe your tests, organize them by assigning them to groups, and choose combinations of tests to be run by test name or by group. The product executes the tests selected and compares the results with the expected results. You may choose to run different combinations of tests simultaneously, and, of course, you can always run all the tests in the test system.

After test execution, a summary of the test status is provided. Test results can be viewed interactively to evaluate the test run and the results used in determining whether to make modifications to code.

Price: $8,000

DIBOL

SPD Number: 25.49
Operating System: MicroVMS, VMS
Keywords: Compilers
Data dictionary
Debugging
Programming tools

Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TU58 DECtape II cartridge.

VAX DIBOL, a high-level procedural language for interactive business data processing, runs under the VAX/VMS and MicroVMS operating systems, taking full advantage of the system facilities. VAX DIBOL is

based on the DIBOL Standards Organization's DIBOL-83 definition of the language; is highly compatible with DIBOL-83 implementations on other operating systems, including RSTS/E, RSX-11M-PLUS, Micro/RSX, CTS-300, Professional CTS-300, and P/OS; and also provides VAX-specific extensions and an expansion path for applications requiring the power of VAX/VMS or MicroVMS, while retaining the capabilities and advantages of DIBOL-83.

DIBOL provides efficient terminal handling and efficient access to the VAX Record Management Services (RMS). DIBOL-83 supports a set of language statements commonly referred to as structured constructs. Those statements are designed to complement and facilitate desirable programming practices.

The DIBOL compiler reads a source program and produces a shareable object module. The compiler can produce a source listing with embedded diagnostics and a cross-reference listing. Object modules produced by the compiler conform to the VAX-11 procedure calling standard and may be linked with native-mode object modules produced by other VAX language processors.

The VAX DIBOL product includes a compiler, a run-time library, external subroutine libraries, the DIBOL Debugging Technique, a message manager for communicating between programs, a program to monitor the activities of the message manager, and programs that provide access to the VAX SORT, using command files that are compatible with other DIBOL products.

Price: Available upon request

DIBOL-11/DECFORM

SPD Number: 14.08
Operating System: RSTS/E
Keywords: Data processing
Languages

RSTS/E DIBOL is a high-level procedural language designed specifically for interactive business data processing. It runs under the RSTS/E operating system, taking advantage of the system facilities. RSTS/E DIBOL is based on the DIBOL Standards Organization's DIBOL-83 definition of the language. RSTS/E DIBOL is highly compatible with DIBOL-83 implementation on other operating systems, including VAX/VMS, CTS-300, RSX-11M-PLUS, Micro/RSX and P/OS.

DIBOL provides efficient terminal handling and efficient access to the Record Management Services (RMS); RMS provides sequential record access, relative record access, and multikey indexed sequential record access.

The RSTS/E DIBOL product includes a compiler, a run-time library, external subroutine libraries, the DIBOL debugging technique, a message manager for communicating between programs, a program to monitor the activities of the message manager, a SORT for DMS and RMS files, and DECFORM.

Price: Available on request

DMS-500 (Data Management Services)

SPD Number: 13.05
Operating System: RSTS
Keywords: Application development
Database management
Utilities

Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RK06, RK07, RL01, RL02.

This extension of the RSTS/E system software aids the development and operation of business applications on a RSTS/E operating system. The software modules in the package provide general methods for organizing and processing logical data records stored in indexed random (hashed), indexed sequential, and relative-access file structures. Interactive utility routines are provided to define, allocate, and organize data into those file structures.

Interfaces to the RSTS/E file system, control of direct-access device input/output, and data buffering are handled by selected software modules appended to user BASIC-PLUS programs. User-developed programs establish file-processing modes and specify input/output operations by using BASIC-PLUS function calls. Application programs identify specific logical records to be added, retrieved, modified, and deleted from file structures. Retrieval and update control for multiple, concurrently operating user programs that access the same data file structures are handled by system-level routines.

An extended sort facility is provided to sequence data maintained in either the DMS-500 Indexed Access Method (IAM) and Indexed Sequential/Relative Access Method (ISAM/RAM) data files or normal BASIC-PLUS record I/O files in blocked data record formats. A multivolume sort input/output capability is included.

Refer to SPD 13.05. when requesting further information on this product from your local DIGITAL sales office.

Price: Available upon request

FEPCM Software Tools Kit

SPD Number: 25.51
Operating System: RSX, VMS
Keywords: Application development
Communications
Device drivers/handlers
Down-line loading

Distribution media: 9-track 1600 bpi magnetic tape, RX01, TU58 DECtape II cartridge.

This package of software modules helps a user develop applications for the FEPCM front-end processor system. The kit can be used in two ways, in either case, the user must also write a VAX/VMS application task to communicate with the VMS Bridge Driver.

The FEPCM Software Tools Kit contains five modules:

- The VMS Bridge Driver provides access to the FEPCM system through the VAX/VMS Queue I/O system service. The driver initiates transfers by issuing commands to the front end.
- The Front-End Bridge Driver provides access to the FEPCM system for the VAX/VMS user through the bridge interface. Access for the RSX-11 user is provided by the RSX-11 Queue I/O directive.
- The Front-End Template I/O Driver provides an example of how to write a front-end driver to support the functions of the VMS Bridge Driver.
- The Front-End Template User Task provides an example of how to write a front-end task to handle I/O requests from the VMS Bridge Driver by returning every request with successful status.
- The Down-Line Load package provides system maintenance requirements, including down-line loading a front end, taking front-end system crash dumps, and reporting status about each front end.

Price: $9900

FMS (Forms Management System)

SPD Number: 26.10
Operating System: MicroVMS, VMS
Keywords: Application development
Forms management
Information management
VAX information architecture

Distribution media: 9-track 1600 bpi magnetic tape, RL02, RX01, RX50, TK50, TU58 DECtape II cartridge.

VAX FMS helps a user develop application programs that use video forms. VAX FMS manages the forms for application programs that use DIGITAL's VT100- and VT200-compatible and 3270-compatible terminals.

FMS allows the application program to access and manipulate data in the form at both the field and full-form levels. With RMS user action routines, the application can perform extensive field validation. User action routines can be written by the application developer in any VMS-supported programming language.

VAX FMS form data structures are used by the Form Driver during run time to display forms and to access and validate data entered by the terminal operator. Forms can be created and modified interactively with the interactive editing facility (FMS/EDIT). Forms can also be defined as a source form description with the Form Language and then converted to a form data structure, using the Form Language Translator (FMS/TRANSLATE).

Forms are stored in form library files on disk and are retrieved by application programs at execution time. That arrangement maintains independence between form data structures and application programs. Forms can be modified without recompilation or relinking of the application program. Forms can also be converted into an object module and linked with application programs to create memory-resident forms, or forms can be dynamically loaded into memory by the application program.

Price: Available upon request

FMS-11/RSX, Version 2.0

SPD Number: 12.27
Operating System: RSX
Keywords: Application development
Database management
Forms management
Programming tools
Query facilities

Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RK06, RK07, RL01, RL02.

This forms-oriented video I/O management system for the RSX-11M, RSX-11M-PLUS, and RSX-11S real-time operating systems functions as an independent software front end that logically off-loads the complexities of interactive video I/O management from the application program. FMS-11/RSX can be used as a general-purpose manager of operator I/O or as a front end in traditional source data entry applications. Possible FMS-11/RSX applications range from database

inquiry/response/update to using periodic displays of the status of a real-time process or accepting control information from the operator for the process.

Call statement, high-level language interfaces are provided for applications written in FORTRAN IV/IAS-RSX, FORTRAN-77/RSX, BASIC-PLUS-2 for RSX-11M and COBOL, as well as MACRO-11 assembly language. FMS-11/RSX is equally effective for implementing applications with question-and-answer, menu, or fill-in-the-blank forms.

Forms defined using FMS-11/RSX can use the following features of DIGITAL's VT100 terminal: reverse video, bold, underlined, and blinking characters; 132-column lines; jump and smooth scrolling; and split and reverse screens.

FMS-11/RSX consists of the following software components:

- FED (Form Editor) - Used by the application developer to create and modify video forms by typing them on the screen as they are to appear to the application user.
- FUT (Form Library Utility) - A multifunction utility program for manipulating files of FMS-11/RSX form descriptions.
- FDV (Form Driver) - A reentrant subroutine called from application programs to control screen processing.
- KED (Video Keypad Editor) - A general-purpose text editor that operates on standard ASCII files. KED uses the function keypad to control the full spectrum of video features of the VT100. A VT52 version (K52) is provided.

Price: $1240 - $3200

FMS-11/RT-11

SPD Number: 12.22
Operating System: RT-11
Keywords: Database management
Development tools
Forms management
Programming tools
Query facilities

This set of utilities and subroutines provides a multiterminal video forms capability for programs written in MACRO-11, BASIC-11, or FORTRAN IV under the RT-11 operating system. Forms defined using FMS-11 can use the following features of DIGITAL's family of VT100-compatible terminals: reverse video, bold, underlined, and blinking characters; 132-column lines; jump and smooth scrolling; and split and reverse screens. The system can be used as a general-purpose manager of operator I/O to programs written in any of the supported languages and also as a front end in traditional source data entry applications.

Each field in an FMS-11/RT-11 form can be assigned attributes such as validation "picture," embedded text characters, right/left justification, fixed decimal, and "must complete." A default value and a line of explanatory help text can be associated with each field of a form. In addition, a separate help display can be associated with each form.

Another feature of FMS-11/RT-11 is "named data," which allows named strings of constant data to be associated with a form at form creation time and retrieved dynamically by name or number during program execution.

FMS-11/RT-11 applications written in MACRO-11 or FORTRAN IV can be built for either single- or multiterminal applications. In multiterminal applications, the terminals can run different tasks and can change tasks independently of one another. The FMS-11/RT-11 software supports the maximum number of terminals allowed under each RT-11 hardware configuration.

FMS-11/RT-11 consists of the following software components:

- FED (Form Editor) - Used by the application developer to create and modify video forms by typing them on a VT100 screen as they are to appear to the application user.
- FRMUTL (Form Utility) - A multifunction program that manipulates FMS-11/RT-11 forms descriptions and that can be used to list the directory of a form library or to print a complete description of a form from a form library or from a data file.
- FDV (Form Driver) - A reentrant subroutine called from application programs to perform screen processing.
- ARTS (Application Run-Time Supervisor) - Allows each terminal in a multiterminal system to run a MACRO-11 or a FORTRAN IV application program independently of the programs on the other terminals. As an interface between the application programs and the RT-11 monitor, ARTS acts as a multitasking submonitor, providing subroutines for terminal and mass storage I/O and for shared and private file access management.

Price: $1240 - $3200

FORTRAN

SPD Number: 25.16
Operating System: MicroVMS, VMS
Keywords: Compilers
Diagnostics
Programming tools

Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TU58 DECtape II cartridge.

VAX FORTRAN is an implementation of full-language FORTRAN-77, conforming to American National Standard FORTRAN, ANSI X3.9-1978. VAX FORTRAN includes optional support for programs conforming to the previous standard, ANSI X3.9-1966. VAX FORTRAN meets the Federal Information Processing Standard Publication (FIPS-69) requirements for a flagger. The flagger optionally produces diagnostic messages for syntax and/or source form elements that do not conform to the Full-Level ANSI FORTRAN X3.9-1978 Standard. The shareable, reentrant compiler operates under the VAX/VMS and MicroVMS operating systems and takes advantage of the VAX floating-point and character string instruction set and the VAX/VMS virtual-memory system.

Price: Available upon request

FORTRAN IV/IAS, Version 2.6

SPD Number: 14.77
Operating System: IAS
Keywords: Compilers
Language enhancers

Distribution media: 9-track 800/1600 bpi magnetic tape, RL02.

An extended implementation of the FORTRAN language based on the ANSI FORTRAN (X3.9-1966) Standard, PDP-11 FORTRAN IV includes the following extensions of the ANSI Standard: general expressions allowed in all meaningful contexts; mixed-mode arithmetic; BYTE data type for character manipulation; ENCODE, DECODE, DEFINE FILE, and PROGRAM statements; PRINT, TYPE, and ACCEPT input/output statements; direct-access unformatted input/output; comments allowed at the end of each source line; OPEN and CLOSE file access control statements; and list-directed input/output.

Additionally, virtual arrays are supported on systems with memory-management directives. Virtual arrays are memory resident and require enough main memory to contain all elements of all arrays.

The PDP-11 FORTRAN IV compiler is a fast 1-pass compiler. Compiler options allow program size versus execution speed (threaded code versus in-line code) tradeoffs. FORTRAN IV compiler optimizations include common subexpression elimination, local code tailoring, array vectoring, and optional in-line code generation for integer and logical operations.

MACRO-11 assembly language subroutines can be called from FORTRAN IV programs. FORTRAN IV includes a set of object modules, called the Object Time System (OTS), that are selectively linked with compiler-produced object modules to produce an executable program.

Price: $700 - $860

FORTRAN IV/RSTS/E, Version 2.6

SPD Number: 12.41
Operating System: RSTS
Keywords: Development tools
Compilers
Language enhancers

An extended implementation of the FORTRAN language based on the ANSI FORTRAN (X3.9-1966) Standard, the PDP-11 FORTRAN IV language includes the following extensions of the ANSI Standard: general expressions allowed in all meaningful contexts; mixed-mode arithmetic; BYTE data type for character manipulation; ENCODE, DECODE, DEFINE FILE, and PROGRAM statements; PRINT, TYPE, and ACCEPT input/output statements; direct-access unformatted input/output; comments allowed at the end of each source line; OPEN and CLOSE file-access control statements; and list-directed input/output.

The PDP-11 FORTRAN IV compiler is a fast 1-pass compiler. Compiler options allow program size versus execution speed (threaded code versus in-line code) tradeoffs. FORTRAN IV compiler optimizations include common subexpression elimination, local code tailoring, array vectoring, and optional in-line code generation for integer and logical operations. FORTRAN IV can optionally generate code for the following arithmetic instructions sets: EIS, FIS, EAE, and FPU.

FORTRAN IV includes a set of object modules, called the Object Time System (OTS), that is selectively linked with compiler-produced object modules to produce an executable program.

The RSTS/E system provides several special features for FORTRAN IV. FORTRAN programs may be developed under RSTS/E and output in absolute binary format for execution on a standalone PDP-11 system with minimal peripherals or for loading into ROM or PROM memory.

Although MACRO-11 assembly language subroutines may be invoked from FORTRAN IV programs, no facility is provided for monitor communication or input/output from within those MACRO subprograms.

Price: $700

FORTRAN IV/RSX, Version 2.6

SPD Number: 14.63
Operating System: RSX
Keywords: Compilers
Language enhancers

FORTRAN IV, an extended implementation of the FORTRAN language based on the ANSI FORTRAN (X3.9-1966) Standard, operates under the RSX-11M and RSX-11M-PLUS operating systems. The PDP-11 FORTRAN IV language includes the following extensions of the ANSI Standard: general expressions allowed in all meaningful contexts; mixed-mode arithmetic; BYTE data type for character manipulation; ENCODE, DECODE, DEFINE FILE, and PROGRAM statements; PRINT, TYPE, and ACCEPT input/output statements; direct-access unformatted input/output; comments allowed at the end of each source line; OPEN and CLOSE file access control statements; and list-directed input/output.

Additional virtual arrays are supported on systems with memory-management directives. Virtual arrays are memory resident and require enough main memory to contain all elements of all arrays.

The PDP-11 FORTRAN IV compiler is a fast 1-pass compiler. Compiler options allow program size versus execution speed (threaded code versus in-line code) tradeoffs. FORTRAN IV compiler optimizations include common subexpression elimination, local code tailoring, array vectoring, and optional in-line code generation for integer and logical operations.

MACRO-11 assembly language subroutines can be called from FORTRAN IV programs. FORTRAN IV can optionally generate code for the following arithmetic instructions sets: EIS, FIS, EAE, and FPU.

FORTRAN IV includes a set of object modules, called the Object Time System (OTS), that are selectively linked with compiler-produced object modules to produce an executable program.

Price: $700

FORTRAN IV/RT-11, Version 2.6

SPD Number: 12.10
Operating System: RT-11
Keywords: Compilers
Development tools
Language enhancers

Distribution media: 9-track 800 bpi magnetic tape, TU58 DECtape II cartridge, RK05, RL01, RL02, RX01, RX02, RX50.

An extended implementation of the FORTRAN language based on the ANSI FORTRAN (X3.9-1966) Standard, PDP-11 FORTRAN IV includes the following extensions of the ANSI Standard:

- General expressions allowed in all meaningful contexts
- Mixed-mode arithmetic
- BYTE data type for character manipulation
- ENCODE, DECODE, DEFINE FILE, and PROGRAM statements
- PRINT, TYPE, and ACCEPT input/output statements
- Direct-access unformatted input/output
- Comments allowed at end of each source line
- OPEN and CLOSE file-access control statements
- List-directed input/output.

Additionally, virtual arrays are supported on systems with memory-management directives. Virtual arrays are memory resident and require enough main memory to contain all elements of all arrays.

The PDP-11 FORTRAN IV compiler is a fast, 1-pass compiler. Compiler options allow program size versus execution speed (threaded code versus in-line code) tradeoffs. FORTRAN IV compiler optimizations include common subexpression elimination, local code tailoring, array vectoring, and optional in-line code generation for integer and logical operations.

FORTRAN IV can optionally generate code for the following arithmetic instruction sets: EIS, FIS, EAE, and FPU.

FORTRAN IV includes a set of object modules, called the Object Time System (OTS), that are selectively linked with compiler-produced object modules to produce an executable program.

The RT-11 system provides several special features for FORTRAN IV. FORTRAN programs may be developed under RT-11 and output in absolute binary format for execution on a standalone PDP-11 system with minimal peripherals, or for loading into ROM or PROM memory.

Using SYSLIB, the RT-11 FORTRAN system subroutine library, all features of the RT-11 monitor are available to FORTRAN programs. Additionally, SYSLIB provides subroutines that support extensive character string manipulations, where the characters are stored as variable-length strings in BYTE arrays.

Price: $700

FORTRAN IV/VAX to RSX (PDP-11 Cross-Compiler)

SPD Number: 25.17
Operating System: VMS
Keywords: Compilers
Cross-compilers
Language enhancers
Programming tools

Distribution media: RX01, TU58 DECtape II cartridge.

FORTRAN IV is an extended FORTRAN implementation based on the former American National Standard (ANSI) FORTRAN (X3.9-1966). The compiler operates under the VAX-11 RSX product on VAX/VMS systems. Compiled programs can be transported to supported RSX-11M/11M-PLUS, RSX-11S, and IAS target systems for task building. In addition, programs that do not use virtual-array support can be task built under VAX-11 RSX. The resulting task image may be executed on RSX-11M/M-PLUS or RSX-11S systems or on the VAX/VMS system under VAX-11 RSX. Programs using virtual arrays must be task built and executed on the target PDP-11 configured with appropriate memory-management hardware and operating system support.

Price: $700

FORTRAN-77 DEBUG/IAS, Version 1.0

SPD Number: 14.81
Operating System: IAS
Keywords: Debugging
Programming tools

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02.

These fully symbolic debuggers for FORTRAN-77 and MACRO-11 programs running on RSX-11M and RSX-11M-PLUS, RSTS/E, and IAS, respectively, are tools to aid in finding the location of programming errors in successfully compiled programs that do not execute properly.

These debuggers run as 2-task debuggers. A small portion of the code, necessary to debug applications, is linked with the user task, and the major portion of the debugger runs as a separate task.

The debuggers provide access to program symbols by reading the symbol table file produced by the task builder. The debuggers can understand symbols produced by PDP-11 FORTRAN-77 and MACRO-11.

Price: $800

FORTRAN-77 DEBUG/RSTS/E, Version 1.0

SPD Number: 12.79
Operating System: RSTS
Keywords: Debugging
Development tools
Programming tools

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02.

These fully symbolic debuggers for FORTRAN-77 and MACRO-11 programs running on RSX-11M and RSX-11M-PLUS, RSTS/E, and IAS, respectively, are tools to aid in finding the location of programming errors in successfully compiled programs that do not execute properly.

These debuggers run as 2-task debuggers. A small portion of the code, necessary to debug applications, is linked with the user task, and the major portion of the debugger runs as a separate task.

The debuggers provide access to program symbols by reading the symbol table file produced by the task builder. The debuggers can understand symbols produced by PDP-11 FORTRAN-77 and MACRO-11.

Price: $300

FORTRAN-77 DEBUG/RSX, RSTS/E, IAS, Version 1.0

SPD Number: S0.38
Operating System: IAS, RSTS, RSX
Keywords: Debugging
Programming tools

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02.

These fully symbolic debuggers for FORTRAN-77 and MACRO-11 programs running on RSX-11M and RSX-11M-PLUS, RSTS/E, and IAS, respectively, are tools to aid in finding the location of programming errors in successfully compiled programs that do not execute properly.

These debuggers run as 2-task debuggers. A small portion of the code, necessary to debug applications, is linked with the user task, and the major portion of the debugger runs as a separate task.

The debuggers provide access to program symbols by reading the symbol table file produced by the task builder. The debuggers can understand symbols produced by PDP-11 FORTRAN-77 and MACRO-11.

Refer to SPD 12.78.00 (RSX), SPD 12.79.00 (RSTS/E), or SPD 14.81.00 (IAS) when requesting further information on these products from your local DIGITAL sales office.

Price: $300 - $800

FORTRAN-77/IAS, Version 5.0

SPD Number: 14.50
Operating System: IAS
Keywords: Compilers
Language enhancers

Distribution medium: 9-track 800/1600 bpi magnetic tape.

An extended implementation of the ANSI subset FORTRAN-77 Standard (X3.9-1978), PDP-11 FORTRAN-77/IAS contains all the features of the ANSI FORTRAN-77 subset, many of the full-set language features, and extensions that are not included in the ANSI FORTRAN-77 Standard. Switch-selectable support is provided for user programs conforming to the previous ANSI FORTRAN Standard (X3.9-1966).

PDP-11 FORTRAN-77/IAS also meets the Federal Information Processing Standard Publication (FIPS PUB-69) requirement for a flagger. The flagger optionally produces diagnostic messages for syntax and/or source form elements that do not conform to the full-level ANSI FORTRAN (X3.9-1978) Standard.

Among the major features defined by the new ANSI subset-language FORTRAN standard and not found in either the previous ANSI Standard or previous versions of DIGITAL PDP-11 FORTRAN are: CHARACTER data type, and block IF construct, including IF...THEN, ELSE IF, ELSE, and END IF statements, for conditional execution of blocks of statements.

The PDP-11 FORTRAN-77 compiler produces direct PDP-11 machine code optimized for execution-time efficiency on a PDP-11 with a floating-point processor. PDP-11 FORTRAN-77 compiler optimizations include:

- Optimizations of arithmetic and logical IF statements
- Common subexpression elimination
- Removal of invariant expressions from DO loops
- Allocation of processor registers across block IF constructs and DO loops.

The PDP-11 FORTRAN-77/IAS Object Time System (OTS) is a set of object modules that are selectively linked with compiler-produced object modules by the operating system's task builder, to produce a task (program) ready for execution.

Price: $5740 - $30,000

FORTRAN-77/RSTS/E, Version 5.0

SPD Number: 14.49
Operating System: RSTS
Keywords: Compilers
Diagnostics
Language enhancers

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02.

This extended implementation of the ANSI subset FORTRAN-77 Standard (X3.9-1978) contains all the features of ANSI FORTRAN-77 subset, many of the full-set language features, and extensions that are not included in the ANSI FORTRAN-77 Standard. Switch-selectable support is provided for user programs conforming to the previous ANSI FORTRAN Standard (X3.9-1966). PDP-11 FORTRAN-77/RSTS/E includes all subset ANSI features, including CHARACTER data type and block IF construct, including IF...THEN, ELSE IF, ELSE, and END IF statements, for conditional execution of blocks of statements.

PDP-11 FORTRAN-77/RSTS/E also meets the Federal Information Processing Standard Publication (FIPS PUB-69) requirement for a flagger. The flagger optionally produces diagnostic messages for syntax and/or source form elements that do not conform to the full-level ANSI FORTRAN (X3.9-1978) Standard.

PDP-11 FORTRAN-77/RSTS/E programs can be optionally executed under control of PDP-11 FORTRAN-77 DEBUG/RSTS/E (SPD 12.79). Execution of application programs using PDP-11 FORTRAN-77 DEBUG aids in the location of programming errors in successfully compiled programs that behave abnormally when executed.

The PDP-11 FORTRAN-77 compiler produces direct PDP-11 machine code optimized for execution-time efficiency on a PDP-11 with a floating-point processor. PDP-11 FORTRAN-77 compiler optimizations include optimizations of arithmetic and logical IF statements, common subexpression elimination, removal of invariant expressions for DO loops, and allocation of processor registers across block IF constructs and DO loops.

The PDP-11 FORTRAN-77/RSTS/E Object Time System (OTS) is a set of object modules that are selectively linked with compiler-produced object modules by the operating system's task builder, to produce a task (program) ready for execution.

Price: $1200 - $3000

FORTRAN-77/RSX, Version 5.0

SPD Number: 14.31
Operating System: RSX
Keywords: Compilers
Diagnostics
Language enhancers

Memory required: 48 Kbytes. Distribution media: 9-track 800/1600 bpi magnetic tape, RK06, RK07, RL01, RL02.

This extended implementation of the ANSI subset FORTRAN-77 Standard (X3.9-1978) runs on the RSX-11M and RSX-11M-PLUS operating systems. PDP-11 FORTRAN-77/RSX contains all the features of the ANSI FORTRAN-77 subset, many of the full-set language features, and extensions that are not included in the ANSI FORTRAN-77 Standard. Switch-selectable support is provided for user programs based on the previous ANSI FORTRAN Standard (X3.9-1966). PDP-11 FORTRAN-77/RSX contains all subset ANSI features, including CHARACTER data type and block IF construct and IF...THEN, ELSE IF, ELSE, and END IF statements, for conditional execution of blocks of statements.

PDP-11 FORTRAN-77/RSX meets the Federal Information Processing Standard Publication (FIPS PUB-69) requirement for a flagger. The flagger optionally produces diagnostic messages for syntax and/or source form elements that do not conform to the full-level ANSI FORTRAN (X3.9-1978) Standard.

PDP-11 FORTRAN-77/RSX programs can be optionally executed under control of PDP-11 FORTRAN-77 DEBUG (SPD 30.33). Execution of application programs using PDP-11 FORTRAN-77 DEBUG aids in the location of programming errors in successfully compiled programs that behave abnormally when executed.

The PDP-11 FORTRAN-77 compiler produces direct PDP-11 machine code optimized for execution-time efficiency on a PDP-11 with a floating-point processor. PDP-11 FORTRAN-77 compiler optimizations include optimizations of arithmetic and logical IF statements, common subexpression elimination, removal of invariant expressions for DO loops, and allocation of processor registers across block IF constructs and DO loops.

The PDP-11 FORTRAN-77/RSX Object Time System (OTS) is a set of object modules that are selectively linked with compiler-produced object modules by the operating system's task builder, to produce a task (program) ready for execution.

Price: Available upon request

FORTRAN-77/RT-11, Version 5.0

SPD Number: A3.55
Operating System: RT-11
Keywords: Compilers
Language enhancers

Distribution media: 1600 bpi magnetic tape, RL01, RX01, RX50.

This modification of PDP-11 FORTRAN-77/RSX enables its operation with RT-11, Version 4 or later. The changes were made to reflect the different operating system environment - primarily the lack of an RMS with RT-11. The changes were designed and implemented by Multiware, Inc., under contract to DIGITAL.

An extended implementation of the ANSI subset FORTRAN-77 Standard (X3.9-1978) that runs on the RT-11 operating system, FORTRAN-77/RT-11 contains all the features of the ANSI FORTRAN-77 subset, many of the full-set language features, and extensions that are not included in the ANSI FORTRAN-77 Standard. Switch-selectable support is provided for user programs based on the previous ANSI FORTRAN Standard (X3.9-1966).

This product meets the Federal Information Processing Standard Publication (FIPS PUB-69) requirement for a flagger. The flagger optionally produces diagnostic messages for syntax and/or source form elements that do not conform to the full-level ANSI FORTRAN (X3.9-1978) Standard.

Price: $700 - $1075

FORTRAN-77/VAX to RSX

SPD Number: 26.16
Operating System: VMS
Keywords: Communications
Compilers
Data conversion

Distribution media: RX01, TU58 DECtape II cartridge.

PDP-11 FORTRAN-77/VAX to RSX is a compatibility-mode compiler that runs on VAX/VMS under the AME. Source programs can be compiled and task-built under the AME and then transported to an RSX system for execution.

PDP-11 FORTRAN-77/VAX to RSX is an extended implementation of the ANSI subset FORTRAN-77 Standard (X3.9-1978) that runs on the VAX/VMS operating system. The compiler contains all the features of the ANSI FORTRAN-77 subset, many of the full-set language features,

and extensions that are not included in the ANSI FORTRAN-77 Standard. Switch-selectable support is provided for programs based on the previous ANSI FORTRAN Standard (X3.9-1966).

PDP-11 FORTRAN-77/VAX to RSX meets the Federal Information Processing Standard Publication requirement for a flagger. The flagger optionally produces diagnostic messages for syntax and/or source form elements that do not conform to the full-level ANSI FORTRAN (X3.9-1978) Standard.

PDP-11 FORTRAN-77/VAX to RSX programs can be optionally executed under control of PDP-11 FORTRAN-77 DEBUG VAX to RSX (SPD 26.75), which aids in the location of programming errors in successfully compiled programs that behave abnormally when executed.

Price: $3000

GW™-BASIC

SPD Number: 50.10
Operating System: MS™-DOS
Keywords: Personal computing
Graphics
Languages
Programming tools

GW-BASIC is a BASIC interpreter that runs on the Rainbow personal computer. GW-BASIC provides an easy-to-use language with English-like commands and includes extensive support for color graphics. Additional support is available for event trapping, timer trapping, and buffered communications.

Features:

- Sophisticated screen handling
- Color graphics
- Buffered communications
- Event trapping
- Re-direction of standard input (INPUT, LINE INPUT) and standard output (PRINT)

Trademark: MS and GW are trademarks of Microsoft Corporation.

Price: $250

KL10 Microcode Product, Version 231 For DECsystem-10 Model A

SPD Number: 08.57
Operating System: TOPS-10
Keywords: Microprogramming tools
Development tools

The KL10 microcode product permits the modification of the KL10 microcode. It is intended for users who need to prepare special microcode programs in order to implement nonstandard operations in a KL10. The MACRO instruction set within the KL10 central processor is implemented by a microcode program executed by the KL10 micromachine. Each KL10 microcode product includes a copy of the current standard KL10 microcode program in load module format. When loaded into the KL10 central processor by the console/diagnostic processor and executed by properly functioning hardware, this program implements the standard KL10.

Components:

- Standard KL10 microcode program
- KL10 microcode assembler (MICRO)
- Load module conversion program (CONVRT)

NOTE

DIGITAL is obligated only to maintain or support hardware or software implemented with the standard KL10 microcode exactly as provided by Digital Equipment Corporation.

Price: Available upon request

KMC11 Tools, Version 1.0

SPD Number: 12.49
Operating System: RSX
Keywords: Development tools
Assemblers
Debugging
Microprocessor development

Distribution media: 9-track 800 bpi magnetic tape, RK05.

This software enables a programmer to assemble, load, and debug microprograms for the KMC11-A auxiliary processor. The KMC11 Tools software operates under the RSX-11M operating system.

KMC11 Tools comprise:

- A MACRO-11 prefix file containing the macro definitions of KMC11 instructions. The prefix file is assembled with a file containing customer-written microinstructions in the form of macro calls. The output of the assembler is subsequently linked, using the operating system's task builder to create a KMC11 microprogram image file.
- A utility program to load the writable control memory of a KMC11-A from a KMC11 microprogram image file. The utility program runs as a privileged task under the supporting operating system.
- A utility program to enable a programmer to debug interactively a microprogram running on a KMC11-A. The utility program runs as a privileged task under the supporting operating system and uses the maintenance features of the KMC11-A hardware. The user can: examine and modify the contents of the microprocessor internal registers, data memory, and control memory; start, stop, or single-step the microprogram; cause the KMC11-A to execute a single microinstruction from the console; and set up to eight breakpoints in the microprogram. If breakpoints are to be used, the 16 highest locations in the KMC11-A control memory must be reserved for the utility program. All addresses and data input and output to the user are in octal.

Price: $4900

KMV1A MicroVMS Development Tools, Version 1.0

SPD Number: 28.24
Operating System: MicroVMS
Keywords: Communications
Programming tools
Debugging
Development tools

The KMV1A MicroVMS Development Tools provide utilities to facilitate the development of telecommunications microcode for a KMV1A Programmable Communications Controller installed on a MicroVAX II host.

The microcode developed with the tools utilities is executed in the microprocessor of the KMV1A Controller to provide a layered telecommunications protocol application on the host system. The utilities provided include a generation procedure to assemble and link the user-written microcode, a debugger to permit the interactive debugging of the microcode, and a dump analyzer to provide a formatted printout of KMV1A and microcode data structures. The KMV1A MicroVMS Development Tools product also includes a demonstration program and an installation verification program.

Price: Available upon request

KMV1A RSX and Micro/RSX Development Tools, Version 1.0

SPD Number: 13.41
Operating System: RSX
Keywords: Communications
Programming tools
Telecommunications

Formerly the KMV11-A Development Tools.

The KMV1A RSX and Micro/RSX Development Tools software/firmware package facilitates the development of layered telecommunications protocols in the KMV1A communications controller. The KMV1A Development Tools operate under the RSX-11M, RSX-11M-PLUS, or RSX-11S operating systems and should be used by programmers with MACRO-11 skills.

The KMV1A tools package contains firmware routines written in MACRO-11. The firmware routines reside in the KMV1A ROM and implement the communication executive functionality. The ROM-resident firmware consists of the power-up code (root firmware), the communication executive routines, self-test routines to detect hardware malfunctions, and a demonstration program.

Price: $750

Language-Sensitive Editor

SPD Number: 26.59
Operating System: MicroVMS, VMS
Keywords: Application development
Development tools
Editing
Programming tools
Text management

Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TU58 DECtape II cartridge.

The VAX Language-Sensitive Editor is a multi-language, multi-window, screen-oriented editor for software development and maintenance. Working together with other VAX Languages (including VAX Ada®, BASIC, BLISS-32, C, COBOL, FORTRAN, Pascal, and PL/I), the editor provides an environment that helps users develop programs more quickly, with fewer errors. The editor provides a "library" of source code templates for the supported VAX languages, along with extensive online HELP.

The editor streamlines software development by allowing users to complete multiple programming tasks within the editor environment. Users can edit, compile, review, and correct compilation errors within a single

editing session. Features are provided for tailoring and extending the editing environment to address user preferences and coding conventions. The editor can be invoked from both the VAX Debugger and the VAX Performance and Coverage Analyzer to correct source code as problems are detected.

Trademark: Ada is a registered trademark of the U.S. Government (Ada Joint Program Office).

Price: $5000

LSI-11 Microprogramming Tools, Version 1.0

SPD Number: 15.90
Operating System: RT-11
Keywords: Assemblers
Debugging
Microprocessor development
Programming tools

These tools enable a programmer to assemble, load, and debug microprograms for the Writable Control Store (WCS) option of the LSI-11 (PDP-11/03) central processor. The LSI-11 Microprogramming Tools operate under the RT-11 operating system SJ monitor.

LSI-11 Microprogramming Tools consist of:

- A microassembler that accepts LSI-11 WCS microinstructions as input. The output of the microassembler is an LSI-11 WCS microprogram object file.
- A utility program to load and unload WCS memory of an LSI-11 CPU. The unload operation creates a microprogram object file from the WCS memory contents. The load operation accepts as input a microprogram object file created by either the unload operation or the microassembler.
- A utility that enables a programmer to interactively debug a microprogram on an LSI-11 CPU with WCS. The utility allows the user to specify dump points and to display and modify WCS memory locations symbolically. The utility also supports all the RT-11 ODT utility features for the LSI-11.
- A microprogram object file containing the microcode equivalent of the KEV11 Extended Arithmetic Element. The KEV11 cannot be used on the same CPU as the KUV11 (WCS) option.

Price: $2010

MACDBG-RT, Version 1.0

SPD Number: 12.58
Operating System: RT-11
Keywords: Debugging
Development tools
Microprocessor development

Distribution media: RL01, RL02, RX02.

This software development/debugging tool is for dedicated microcomputer applications in which the application hardware does not include mass storage. MACDBG supports the development and debugging of MACRO-11 code only.

A user first creates and partially debugs the application software on a host RT-11 operating system, using the facilities provided with RT-11. MACDBG-RT can then be used to down-line load that application software into the target application system, using a serial link from the host system to the console port of the target processor. MACDBG-RT can be used to debug and to control the execution of the application software in the target system.

Price: $250

MACSYS-RT (MACRO-11 Development System Software), Version 1.1

SPD Number: 12.61
Operating System: RT-11
Keywords: Debugging
Microprocessor development
Development tools
Programming tools

Distribution medium: RX02.

This microcomputer software development environment for the MACRO-11 programmer is packaged with 11MDS hardware. MACSYS-RT consists of MACDBG-RT, a remote debugger for MACRO-11 programmers, and the RT-11 operating system.

MACSYS-RT can be installed using the RT-11 and MACDBG-RT customer installation instructions. RT-11 must be installed with the options identified in the MACDBG-RT installation procedure. With the facilities available under this monitor, the user can develop application programs in MACRO-11. For target applications that do not use RT, the user can link the target application hardware to the 11MDS system through a serial link and use MACDBG-RT to down-line load and test application software in the target environment.

RT-11 provides a disk-based, single-use, real-time operating system designed for interactive program development and/or on-line applications. RT-11 supports single-job (SJ), foreground/background (FB), and extended-memory (XM) modes of processing. RT-11 minimizes system requirements in the CPU and on the mass-storage device, while maximizing system throughput.

MACDBG-RT is an RT-11-layered software development/debugging tool for MACRO-11 users. MACDBG-RT enables programmers who have developed applications in MACRO-11 language on a host RT-11 system to down-line load the application software across a serial line into the target system and to test/debug and control the execution of target system from the host system. That is useful primarily for applications without mass storage.

Price: $410

MBASIC® for DECmate II

SPD Number: A0.98
Operating System: CP/M®
Keywords: Personal computing
BASIC
Development tools
Languages
Microsoft® BASIC
Programming tools

MBASIC is an advanced interpretive BASIC language available for Rainbow 100 and DECmate II personal computers. DIGITAL's service-approved version of this popular, all-purpose programming language was developed by Microsoft Corporation to meet ANSI standards for BASIC. MBASIC is a powerful, extended interpreter for home and business applications.

Features:

- Integer string, single precision floating-point and double precision floating-point, and multi-dimensioned arrays are supported.
- Up to 10 assembly language subroutine calls per program can be made.
- Disk BASIC supports variable length random and sequential disk files with OPEN, CLOSE, GET, PUT, KILL, NAME, and MERGE statements.

Price: $250

MBASIC-86® for the Rainbow

SPD Number: A0.95
Operating System: CP/M®
Keywords: Personal computing
BASIC
Languages
Microsoft® BASIC
Programming tools

BASIC is a conversational language developed at Dartmouth College that uses simple English language-like statements and familiar notations to perform programming operations. MBASIC-86 is an implementation of the BASIC language developed by Microsoft Corporation. MBASIC-86 fully complies with the ANSI standard for BASIC and has a number of extensions.

MBASIC-86 is an interpreter which runs as an application program under the CP/M operating system on the Rainbow 100. MBASIC-86 allows the use of the CP/M LST: facility for printer output, and disk files.

Trademark: MBASIC-86 and Microsoft are registered trademarks of Microsoft Corporation.

CP/M is a registered trademark of Digital Research, Inc.

Price: $250

MDE (Microcomputer Development Environment)

SPD Number: 25.87
Operating System: VMS
Keywords: Debugging
Microprocessor development
Simulation
Source code control

Distribution media: RX01, TU58 DECtape II cartridge.

VAX MDE is an in-circuit emulation development system for Micro/T-11 16-bit microprocessors. VAX MDE offers features for observing, controlling, and simulating the hardware interface between the processor and external circuitry, without impacting the speed, performance, or operating environment of the Micro/T-11. VAX MDE includes a MACRO-11 source language debugger and contains a hardware interface that observes and controls the Micro/T-11 signals in real time.

Price: Available upon request

MENU-11/RSTS, Version 2.0

SPD Number: 12.60
Operating System: RSTS
Keywords: Menu handlers
Office systems
Development tools
Programming tools

Distribution media: 9-track 800/1600 bpi magnetic tape, RL02, RX50.

MENU-11/RSTS enables the RSTS applications developer or the RSTS system manager to present a simple menu-driven interface to the user on a video terminal for both system and application functions. MENU-11/RSTS accepts and executes commands related to the menu items to perform specific functions, without extensive user training in the details of the RSTS operating system.

Three types of commands provide screen formatting, program execution, and security access. Those commands allow the developer to format the menu screen for the user's terminal and to control the interfacing of the user with the system.

Price: Available upon request

MicroPower/Pascal-Micro/RSX, Version 2.1

SPD Number: 18.24
Operating System: Micro/RSX
Keywords: Compilers
Debugging
Microprocessor development
Utilities

Distribution medium: RX50.

This Micro/RSX layered product belongs to the MicroPower/Pascal product family. MicroPower/Pascal, a modular executive and software development package for PDP-11 (Q-BUS)-based microcomputer applications, includes software components to create, build, and debug/test concurrent real-time application software running standalone on a target run-time microcomputer system.

MicroPower/Pascal is offered in various packaging options according to the required host development system. MicroPower/Pascal-Micro/RSX requires Micro/RSX host development systems.

Price: Available upon request

MicroPower/Pascal-RSX, Version 2.1

SPD Number: 14.83
Operating System: RSX
Keywords: Compilers
Debugging
Device drivers/handlers
Microprocessor development

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02.

MicroPower/Pascal-RSX is an RSX-11M/M-PLUS layered product in the MicroPower/Pascal product family. MicroPower/Pascal is a modular executive and software development package for PDP-11 (Q-BUS)-based microcomputer applications. It includes software components needed to create, build, and debug/test concurrent real-time application software running standalone on a target run-time microcomputer system. MicroPower/Pascal is offered in various packaging options according to the host development system required.

MicroPower/Pascal-RSX supports application software development using a host RSX development system and a target PDP-11 (Q-BUS only) run-time system for the microcomputer application. The application software is created and linked with the appropriate MicroPower/Pascal run-time software components on the host development system. The application software is transported to the target run-time system for debugging/testing and execution. Software execution can be controlled and tracked from the host with the MicroPower/Pascal-RSX debugging tools if a serial line is connected between the host development system and the console part of the target run-time system. The separation of the host development system from the target run-time system allows the user to use a high-performance host development system and to test the application software in the target run-time environment.

The MicroPower/Pascal-RSX software package includes MicroPower/Pascal-RSX installation verification command procedures; host development system software components: extended Pascal compiler, PASDBG Pascal symbolic debugger, MicroPower/Pascal-RSX utilities, and MPBUILD application-building command procedure; and MicroPower/Pascal target run-time system software: modular real-time executive, target run-time device handlers, RT-11-compatible file system, timer services (clock process), and Pascal Object Time System (OTS) for target.

An extended version of Pascal is provided as the system implementation language suitable for most user applications. The extensions in the language enables the user to write real-time applications entirely in Pascal; however, MACRO-11 can also be used as the implementation language for sections of code.

Price: Available upon request

MicroPower/Pascal-RT, Version 2.1

SPD Number: 19.12
Operating System: RT-11
Keywords: Compilers
Debugging
Device drivers/handlers
Microprocessor development

Distribution media: RL02, RX02, RX50.

This modular executive and software development package for PDP-11 (Q-BUS)-based microcomputer applications includes all components needed to create, build, and debug/test concurrent real-time application software running standalone on a target run-time microcomputer system. MicroPower/Pascal-RT supports application software development, using a host PDP-11 (Q-BUS or UNIBUS) development system and a target PDP-11 (Q-BUS only) run-time system for the microcomputer application.

The application software is created and linked with the appropriate MicroPower/Pascal-RT run-time software components on the host development system. MicroPower/Pascal-RT provides all the host development system software components needed for that step. When the application software is ready for debugging/testing, it is transported to the target run-time system. The application software can then be executed in the target run-time system. If a serial line is connected between the host development system and the console port of the target run-time system, the execution of the application software in the target can be controlled and tracked from the host with the help of the debugging tools provided in MicroPower/Pascal-RT. The separation of the host development system from the target run-time system allows the user to use a high-performance host development system and to test the application software in the target run-time environment.

A version of this product is available for the VAX computer.

Price: $1975 - $5000

MicroPower/Pascal-VMS, Version 2.1

SPD Number: 26.24
Operating System: VMS
Keywords: Compilers
Debugging
Device drivers/handlers
Microprocessor development

Distribution media: 9-track 1600 bpi magnetic tape, RK07, RL02.

This modular executive and software development package for PDP-11-based microcomputer applications includes the software components needed to create, build, and debug/test concurrent real-time application software running standalone on a target run-time microcomputer system. MicroPower/Pascal-VMS supports application software development, using a host VAX/VMS development system and a target PDP-11 (Q-bus only) run-time system for the microcomputer application.

The application software is created and linked with the appropriate MicroPower/Pascal-VMS run-time software components on the host development system. When the application software is ready for debugging/testing, it is transported to the target run-time system. The application software can then be executed in the target run-time system. If a serial line is connected between the host development system and the console port of the target run-time system, the execution of the application software in the target can be controlled and tracked from the host with the help of the debugging tools provided in MicroPower/Pascal-VMS.

The separation of the host development system from the target run-time system allows the user to use a high-performance host development system and to test the application software in the target run-time environment.

The MicroPower/Pascal-VMS software package includes installation/verification command procedures, host development system software components, and MicroPower/Pascal target run-time system software.

Price: $1150 - $1500

Micro/RSTS BASIC-PLUS-2, Version 2.2

SPD Number: 18.09
Operating System: Micro/RSTS
Keywords: Compilers
Language enhancers
Microprocessor development
Programming tools

Memory required: 256K (system); 64K (user). Distribution medium: RX50.

This extended BASIC compiler provides a high-performance environment for applications development and timesharing by generating threaded code instructions and combines immediate mode with the power of a structured programming language. BASIC-PLUS-2 provides a BASIC programming support environment; compile-time directives; structured programming constructs; EXTERNAL statement; language subsets and subset flaggers; declining feature flagger for program mainte-

nance/conversion use; exception handling (ON ERROR) for main and subprograms; multiline statements and multistatement lines; program segmentation; implicit or explicit data typing; symbolic names for control characters BEL, BS, HT, LF, VT, FF, CR, SO, SI, ESC, and DEL; definition of user-defined program constants through DECLARE CONSTANT; a BASIC symbolic debugger allowing inspection and alteration of program variables; file organization and access methods; dynamic record definition and variable allocation through MAP DYNAMIC; extended report formatting capabilities; arrays up to eight dimensions, declared at run time; matrix-manipulation capabilities; and compatibility with key RSTS/E BASIC-PLUS features.

Price: $1200

Micro/RSTS COBOL-81, Version 2.2

SPD Number: 18.08
Operating System: Micro/RSTS
Keywords: Compilers
Microprocessor development
Programming tools

Distribution medium: RX50.

This high-level language for business data processing operates under the control of the Micro/RSTS operating system. Based on the 1974 ANSI COBOL Standard X3.23-1974, Micro/RSTS includes some of the features planned for the next COBOL standard. Micro/RSTS COBOL-81 shares some common syntax with VAX COBOL and includes various DIGITAL extensions to COBOL, such as screen handling at the source language level, RMS-STS and RMS-STV special registers, and file sharing. This language also features a compiler, an object-time system library, and an interactive symbolic debugger.

Micro/RSTS COBOL-81 is designed to meet the low-intermediate level requirements of the U.S. government, as described in FIPS PUB21-1. Many of the individual modules are designed to meet the high-level requirements.

Price: $1200

Micro/RSTS FORTRAN-77 DEBUG, Version 1.0

SPD Number: 18.11
Operating System: Micro/RSTS
Keywords: Debugging
Microprocessor development
Programming tools

Distribution medium: RX50.

This fully symbolic debugger for FORTRAN-77 and MACRO-11 runs on Micro/RSTS and is used to locate programming errors in successfully compiled programs that behave abnormally when executed. Micro/RSTS FORTRAN-77 DEBUG runs as a 2-task debugger. A small portion of the code necessary to debug applications is linked with the user task, and the major portion of the debugger runs as a separate task.

Micro/RSTS FORTRAN-77 DEBUG provides access to program symbols by reading the symbol table file produced by the task builder. Micro/RSTS FORTRAN-77 DEBUG can understand symbols produced by Micro/RSTS FORTRAN-77 and MACRO-11.

This debugger features:

- DEPOSIT and EXAMINE of all data types supported by Micro/RSTS FORTRAN-77 (except virtual array elements)
- Full tracepoint and breakpoint functionality for monitoring the execution of user applications, including the ability to delay the activation of a tracepoint or a breakpoint and the ability to specify an action on encountering a tracepoint or a breakpoint
- Control of execution, using STEP by LINE or INSTRUCTION, STEP INTO or OVER routines, and the GO command
- Computation of the value of source language expressions or of address expressions using the EVALUATE command
- Full support for overlaid code, including the ability to set tracepoint and breakpoint on locations not currently resident
- Ability to drive a debugging session using indirect command files and to record the results of a debugging session by command logging
- On-line HELP that allows the user to receive information about the commands accepted by Micro/RSTS FORTRAN-77 DEBUG during a debugging session.

Price: $300

Micro/RSTS FORTRAN-77, Version 5.0

SPD Number: 18.10
Operating System: Micro/RSTS
Keywords: Compilers
Diagnostics
Language enhancers
Microprocessor development

Distribution medium: RX50.

This extended implementation of the ANSI subset FORTRAN-77 standard (X3.9-1978) runs on the Micro/RSTS operating system and contains all the features of the ANSI FORTRAN-77 subset, many of the full-set language features, and extensions that are not included in the ANSI FORTRAN-77 standard. Switch-selectable support is provided for user programs based on the previous ANSI FORTRAN standard (X3.9-1966).

Micro/RSTS FORTRAN-77 meets the Federal Information Processing Standard Publication (FIPS PUB-69) requirement for a flagger. The flagger optionally produces diagnostic messages for syntax and/or source form elements that do not conform to the full-level ANSI FORTRAN X3.9-1978 standard.

Micro/RSTS FORTRAN-77 programs can be optionally executed under control of Micro/RSTS FORTRAN-77 DEBUG (SPD 18.11). Execution of application programs using Micro/RSTS FORTRAN-77 DEBUG aids in locating programming errors in successfully compiled programs that behave abnormally when executed.

The Micro/RSTS FORTRAN-77 compiler produces direct PDP-11 machine code optimized for execution-time efficiency on a MicroPDP-11 with a floating-point processor.

Price: $1200

Micro/RSX BASIC-PLUS-2, Version 2.2

SPD Number: 18.06
Operating System: Micro/RSX
Keywords: Compilers
Language enhancers
Microprocessor development
Programming tools

Distribution medium: RX50.

This extended BASIC compiler, the same as the one for the RSX-11M or RSX-11M-PLUS operating system, takes full advantage of the PDP-11 floating-point and integer instructions. Micro/RSX BASIC-PLUS-2 provides a high-performance program-execution environment

for applications development and timesharing by generating threaded code instructions. The compiler combines immediate mode with the power of a structured programming language.

In addition to elementary BASIC language features, formatting capabilities, access methods, and more, Micro/RSX BASIC-PLUS-2 provides a BASIC programming support environment, compile-time directives, structured programming constructs, language subsets and subset flaggers, exception handling (ON ERROR) for the main and subprograms, multiline statements and multistatement lines, and program segmentation and permits implicit or explicit data typing.

Price: $1200

Micro/RSX COBOL-81, Version 2.2

SPD Number: 18.03
Operating System: Micro/RSX
Keywords: Compilers
Debugging
Language enhancers
Microprocessor development

Distribution medium: RX50.

This high-level language for business data processing operates under control of the Micro/RSX operating system, is based on the 1974 ANSI COBOL Standard (X3.23-1974), and includes some of the features planned for the next COBOL standard. Micro/RSX COBOL-81 shares some common syntax with VAX COBOL and includes various DIGITAL extensions to COBOL, including screen handling at the source language level.

Micro/RSX COBOL-81 consists of a compiler and an object-time system/library. The compiler produces an object module from a source program. The compiler can produce a source listing with embedded diagnostics indicating the line and position of a source code error, a data-name map, a procedure-name map, and a cross-reference listing in alphabetical order.

Price: $1200

Micro/RSX DIBOL, Version 1.1

SPD Number: 18.05
Operating System: Micro/RSX
Keywords: Compilers
Debugging
Language enhancers
Microprocessor development

Distribution medium: RX50.

This high-level procedural language for interactive business data processing is based on the DIBOL Standards Organization's DIBOL-83 definition of the language. Micro/RSX DIBOL is highly compatible with DIBOL-83 implementations on VAX/VMS, RSTS/E, CTS-300, Professional CTS-300, RSX-11M-PLUS, and P/OS. This language also provides Micro/RSX-specific extensions and an expansion path for applications requiring the advantages of Micro/RSX while retaining the capabilities and advantages of DIBOL-83.

Micro/RSX DIBOL provides efficient terminal handling and efficient access to the Micro/RSX Record Management Services (RMS). RMS provides sequential, relative, and multikey indexed record access.

The Micro/RSX DIBOL compiler reads a source program and produces an object module. The compiler can produce a source listing with embedded diagnostics.

The Micro/RSX DIBOL product includes a compiler, a run-time library, external subroutine libraries, the DIBOL Debugging Technique, and the ability to communicate between programs.

Price: $1200

Micro/RSX FORTRAN-77 DEBUG, Version 1.0

SPD Number: 14.79
Operating System: Micro/RSX
Keywords: Debugging
Language enhancers
Microprocessor development
Programming tools

Distribution medium: RX50.

This fully symbolic debugger for FORTRAN-77 and MACRO-11 running on the Micro/RSX operating system aids in locating programming errors in successfully compiled programs that behave abnormally. Micro/RSX FORTRAN-77 DEBUG runs as a 2-task debugger. A small portion of the code, necessary to debug applications, is linked with the user task, and the major portion of the debugger runs as a separate task. Micro/RSX FORTRAN-77 DEBUG provides access to program sym-

bols by reading the symbol table file produced by the task builder on the Micro/RSX operating system. Micro/RSX FORTRAN-77 DEBUG can understand symbols produced by Micro/RSX FORTRAN-77 and MACRO-11.

Micro/RSX FORTRAN-77 DEBUG includes the following features:

- DEPOSIT and EXAMINE of all data types supported by Micro/RSX FORTRAN-77 (except virtual array elements)
- Full tracepoint and breakpoint functionality for monitoring the execution of user applications, plus the ability to delay the activation of a tracepoint or breakpoint until after it has been encountered a specified number of times, and the ability to specify an action when encountering a tracepoint or breakpoint
- Control of execution, using STEP by LINE or INSTRUCTION, STEP INTO routines or OVER routines, and the GO command
- Computation of the value of source language expressions or of address expressions, using the EVALUATE command
- Full support for overlaid code, including the ability to set tracepoints and breakpoints on locations not currently resident. Micro/RSX FORTRAN-77 DEBUG can distinguish multiple copies of modules located at different points in the overlay structure
- The ability to drive a debugging session using indirect command files and to record the results of a debugging session by command logging; Micro/RSX FORTRAN-77 DEBUG can be used interactively or in batch mode
- On-line HELP that allows the user to receive information about the commands accepted by Micro/RSX FORTRAN-77 DEBUG during a debugging session.

Price: $140 - $300

Micro/RSX FORTRAN-77, Version 5.0

SPD Number: 18.04
Operating System: Micro/RSX
Keywords: Compilers
Diagnostics
Language enhancers
Microprocessor development

Distribution medium: RX50.

This extended implementation of the ANSI subset FORTRAN-77 Standard (X3.9-1978) runs on the Micro/RSX operating system. Micro/RSX FORTRAN-77 contains all the features of the ANSI FORTRAN-77 subset, many of the full-set language features, and extensions that are not included in the ANSI FORTRAN-77 Standard. Switch-selectable support is provided for user programs, based on the previous ANSI

FORTRAN Standard (X3.9-1966). Micro/RSX FORTRAN-77 includes all subset ANSI features, including CHARACTER data type and block IF construct, with IF...THEN, ELSE IF, ELSE and END IF statements, for conditional execution of blocks of statements.

Micro/RSX FORTRAN-77 meets the Federal Information Processing Standard Publication (FIPS PUB-69) requirement for a flagger. The flagger optionally produces diagnostic messages for syntax and/or source form elements that do not conform to the full-level ANSI FORTRAN (X3.9-1978) Standard.

The programs can be optionally executed under control of Micro/RSX FORTRAN-77 DEBUG (SPD 14.79). Execution of application programs using PDP-11 FORTRAN-77 DEBUG aids in locating programming errors in successfully compiled programs that behave abnormally when executed.

Price: $1200

Micro/RSX PDP-11 Pascal, Version 1.1

SPD Number: 18.07
Operating System: Micro/RSX
Keywords: Compilers
Language enhancers
Microprocessor development

Distribution medium: RX50.

This implementation of the Pascal language accepts programs compatible with Level 0 of the ISO Specification for the Computer Programming Language Pascal (Draft International Standard 7185). Micro/RSX PDP-11 Pascal is a multipass optimizing compiler that provides INTEGER, REAL, CHAR, BOOLEAN, enumerated, and subrange data types; ARRAY, RECORD, SET, and FILE structured data types; FOR, REPEAT, and WHILE repetitive control statements; CASE, IF-THEN, and IF-THEN-ELSE conditional statements; BEGIN....END compound statement; GOTO statement; and READ, WRITE, READLN, and WRITELN input and output procedures.

The Micro/RSX PDP-11 Pascal compiler performs optimizations designed to improve execution speed, including constant folding, constant conversion, constant pooling, and global register assignment. Optional instruction to the compiler and input and output file attributes are specified by compiler switches that perform run-time checks of array bound, case selectors, pointers, string bounds, and subrange bounds; limit the number of error messages printed and allow compilation to continue regardless of the number of errors; cause code to be generated that provides source line numbers at run time; produce an optimal, machine-code listing; identify the Micro/RSX PDP-11 Pascal compiler

version number; print warning-level messages that identify the use of Micro/RSX PDP-11 Pascal extensions; and provide automatic spooling of the listing file.

Price: $1200

MINC BASIC, Version 3.1

SPD Number: 14.47
Operating System: MINC
Keywords: Graphics
Language enhancers
Programming tools
Scientific

Distribution media: RL01, RL02, RX02.

This conversational language developed at Dartmouth College uses simple English-like statements and familiar notations to perform programming operations. The MINC BASIC implementation for the MINC system conforms to the American National Standards for minimal BASIC (ANSI X3.60-1978). MINC BASIC operates as a computational, graphics, and laboratory data-acquisition and control package for scientific and clinical applications and provides features for writing, editing, and running user programs. The screen text editor uses special function keys to make program editing easier.

The graphics calls in MINC BASIC plot two single-valued functions on the console CRT, with a resolution of 512 points on the X-axis and 190 points on the Y-axis. Other graphics features include automatic scaling, shading, and interpolation.

MINC BASIC includes commands for the control and monitoring of experiments through the standard IEEE-488 Interface or optional MINC plug-in modules for analog-to-digital conversion, analog preamplification and multiplexing, digital-to-analog conversion, digital input and output, timekeeping (crystal clock), and thermocouple temperature conversion. The commands display characters on the console CRT screen in reverse video, flashing, boldface, underline, and combination formats.

Price: $850 - $1500

MS C Compiler™ – Microsoft® Applications for the VAXmate

SPD Number: X0.39
Operating System: MS™-DOS V3.10
Keywords: Compilers
C
VAXmate

The MS C Compiler application can be installed on a VAXmate, MicroVAX, or VAX server. VAXmates attached to the server may then share a single copy of the application, providing the customer has purchased the appropriate license. This saves the inconvenience of loading the application from a floppy if no hard disk is present and assures each user of having the latest version of the application.

MS C Compiler is a full implementation of C and produces optimized native code for the 8086/286 class of microprocessors. Developers may specify type of optimization preferred (speed or size). An extensive library of subroutines that implement UNIX™ System V functions is included.

Small, medium, and large memory models, NEAR and FAR extensions, and mixed-model programming capabilities give you flexibility in selecting the addressing requirements of the software. Capable of developing applications that use memory up to 1 Mbyte.

The package includes complete development facilities including the compiler, run-time library, linker, and library manager.

Price: $450

MS COBOL Compiler™ – Microsoft® Applications for the VAXmate

SPD Number: X0.40
Operating System: MS™-DOS V3.10
Keywords: Compilers
COBOL
VAXmate

The MS COBOL Compiler application can be installed on a VAXmate or MicroVAX or VAX server. VAXmates attached to the server may then share a single copy of the application, providing the customer has purchased a server license for the appropriate number of simultaneous

users; or if server licensing is not available, the customer has checked the license provisions under which the software was acquired and obtains the necessary permission before installing or operating the product on a server. Note that even with single-user licensing, having a single copy of the application on the server negates the need for each user to have his or her own hard disk, saves the inconvenience of loading the application off a floppy if no hard disk is present and assures each user of having the latest version of the application.

MS COBOL Compiler has been certified by the Federal Compiler Testing Center for compliance with the low-intermediate level of the ANSI X3.23-1974 standard and many higher-level standards. Thousands of existing applications written for larger computers can be adapted and transported to MS COBOL.

The screen section in MS COBOL Compiler makes it easy to create forms and menus for interactive, user-friendly programs. Cursor position, field highlighting, prompting, and automatic form conversion are among the features provided. Once the form has been defined, it may be displayed or accepted with a single statement.

MS COBOL Compiler also provides an interactive, symbolic debugger which lets the programmer step through a program while it is running and review and change selected data items by name.

Price: $700

MS FORTRAN Compiler™ – Microsoft® Applications for the VAXmate

SPD Number: X0.37
Operating System: MS™-DOS V3.10
Keywords: Compilers
FORTRAN
VAXmate

The MS FORTRAN Compiler application can be installed on a VAXmate, MicroVAX, or VAX server. VAXmates attached to the server may then share a single copy of the application, providing the customer has purchased the appropriate license. This saves the inconvenience of loading the application off a floppy if no hard disk is present and assures each user of having the latest version of the application.

The MS FORTRAN Compiler combines fast, efficient, native code compilation with built-in support for the optional VAXmate 80287 floating-point coprocessor. MS FORTRAN is based on the ANSI 77 standard with extensions to provide even greater programming power.

Separate compilation provides support for modular development, and allows program modules to be linked together to create applications as large as 1 Mbyte. MS FORTRAN Compiler object modules may be linked with those created by the MS Macro Assembler or MS Pascal Compiler.

Price: $350

MS Macro Assembler™ – Microsoft® Applications for the VAXmate

SPD Number: X0.41
Operating System: MS™-DOS V3.10
Keywords: Assemblers
Compilers
VAXmate

The MS Macro Assembler application can be installed on a VAXmate or MicroVAX or VAX server. VAXmates attached to the server may then share a single copy of the application, providing the customer has purchased the appropriate server license. This saves the inconvenience of loading the application from a floppy if no hard disk is present and assures each user of having the latest version of the application.

The MS Macro Assembler for the 8086/186/286 family of microprocessors allows conditional assembly. A rich set of directives allow full use and power of the microprocessor. MS Macro produces relocatable object modules capable of being linked with those of any of Microsoft's high-level languages.

SYMDEB (a source line debugger capable of working with Macro, C, Pascal, and FORTRAN programs at the source level) is provided with MS Macro. Breakpoints, tracing, dumping, and memory display and modification are present.

Also provided on the kit are the Microsoft standard LINKer, CREF (a cross reference facility), and MAKE for maintaining updates to development files.

Trademark: Microsoft is a registered trademark of Microsoft Corporation.

MS and MS Macro Assembler are trademarks of Microsoft Corporation.

Price: $150

MS Pascal Compiler™ – Microsoft® Applications for the VAXmate

SPD Number: X0.38
Operating System: MS™-DOS
Keywords: Compilers
Pascal
VAXmate

The MS Pascal Compiler application can be installed on a VAXmate, MicroVAX, or VAX server. VAXmates attached to the server may then share a single copy of the application, providing the customer has purchased the appropriate license. This saves the inconvenience of loading the application off a floppy if no hard disk is present and assures each user of having the latest version of the application.

The MS Pascal Compiler is a powerful system development language. It allows programmers to create highly readable, modular, and transportable code. Based on the proposed ISO and ANSI standards, MS Pascal allows low-level access to assembly language routines and direct memory locations.

The relocatable object modules are compatible with MS FORTRAN Compiler and MS Macro Assembler; users can combine routines generated in different languages.

MS Pascal Compiler supports the optional VAXmate 80287 coprocessor for faster floating-point operations or emulation of floating point where floating hardware does not exist.

MS Pascal Compiler supports data structures that extend beyond the traditional 64K segment limit, allowing programs to use all of the available memory.

Trademark: Microsoft is a registered trademark of Microsoft Corporation.

MS and MS Pascal Compiler are trademarks of Microsoft Corporation.

Price: $295

MS-BASIC™ Compiler

SPD Number: A3.98
Operating System: MS™-DOS
Keywords: Personal computing
BASIC
Compilers
Languages
Programming tools

MS-BASIC Compiler is an optimizing compiler designed to complement the Microsoft® BASIC Interpreter. It allows the user to create applications that will execute faster than the same interpreted program. Compiled programs require less memory than interpreted programs and also provide course code security.

Features:

- Provides support for most MS-BASIC commands
- Includes run-time module (BASRUN.EXE)
- Supports integer, string, single and double precision floating-point type variables
- Includes PEEK and POKE statements to read and write to memory locations
- Includes Boolean operations such as OR, AND, NOT, XOR, EQV, and IMP
- Provides formatted output capabilities with PRINT USING statement
- Allows assembly language subroutine calls with USR and CALL statements
- Supports program chaining
- Includes a complete set of file manipulation statements supporting both sequential and random access disk files (OPEN, CLOSE, GET PUT, KILL, NAME, and MERGE)

Price: $395

MS-BASIC™ Interpreter

SPD Number: A3.97
Operating System: MS™-DOS
Keywords: Personal computing
BASIC
Interpreters
Languages
Programming tools

The MS-BASIC Interpreter is a versatile, easy-to-use language that accepts English-like commands and statements. This language is ideal for both the novice or experienced programmer to develop applications ranging from finance and scientific analysis to educational and recreational programs.

Features:

- Supports integer, string, single and double precision floating-point type variables
- Includes trace facilities (TRON/TROFF) for program debugging
- Provides error trapping using the ON ERROR GOTO statement
- Provides PEEK and POKE statements to read/write to memory locations
- Provides automatic line numbering and renumbering
- Supports multi-dimensioned arrays
- Provides extensive line editing features via EDIT command
- Allows assembly language subroutine calls with the USR and CALL statements
- Includes IF/THEN/ELSE; WHILE/WEND and nested IF/THEN/ELSE constructs
- Provides extensive data file management commands for both sequential and random access data files

Trademark: MS and MS-BASIC are trademarks of Microsoft Corporation.

Price: $350

MS-FORTRAN™ Compiler

SPD Number: A4.20
Operating System: MS™-DOS
Keywords: Personal computing
Compilers
FORTRAN
Languages
Programming tools

The MS-FORTRAN Compiler is an effective and efficient 16-bit implementation of FORTRAN for the Rainbow personal computer and is an ideal language for solving complex engineering and scientific problems.

Features:

- Meets 1977 ANSI standards at subset level and includes many features and extensions of the full standard
- Supports 8087 math co-processor providing enhanced performance for mathematical computations
- Provides 8087 emulation mode allowing applications to run on systems without the 8087 installed
- Provides double precision accuracy to 14 digits
- Allows linking of modules written in 8086 macro assembly language, MS-FORTRAN or MS-PASCAL™
- Includes list-directed I/O and generalized I/O drivers
- Provides extensive program development support for memory management, and array building tools and run-time support from auxiliary floating-point libraries and the run-time intrinsic function routines

Trademark: MS, MS-FORTRAN, and MS-PASCAL are trademarks of Microsoft Corporation.

Price: $350

MS-PASCAL™ Compiler

SPD Number: A4.04
Operating System: MS™-DOS
Keywords: Personal computing
Compilers
Languages
Pascal
Programming tools

MS-PASCAL is a highly structured, system-oriented language that is well suited for most system programming tasks and is especially adept at handling complex problems quickly.

Features:

- Generally conforms to ISO proposed standard at Level 0
- Offers more extensions than other PASCAL compilers
- Generates native machine code for faster execution
- Supports 8087 math co-processor providing faster execution of mathematical computations
- Provides optional double-precision real numbers in IEEE floating-point standard format for high degree of accuracy
- Provides linking to modules written in 8086 assembly language

Trademark: MS and MS-PASCAL are trademarks of Microsoft Corporation.

Price: $350

MWC-86™ C Compiler

SPD Number: A1.10
Operating System: CP/M®
Keywords: Personal computing
Compilers
Language enhancers
Programming tools

MWC-86 C Compiler is a software development package for the Rainbow 100 personal computer consisting of a C Compiler, an assembler, a linking loader and several utilities that produce 8086/8088 relocatable object code. All of the language as described in Kernighan and Ritchie is included. The standard I/O and math libraries are compatible with UNIX™ Version 7.0. A Rainbow-specific library is included, giving the programmer access to the extended console BDOS functions from C.

The compiler consists of a preprocessor, a compiler parser, a compiler code generator, a code optimizer, and a linking loader. An 8086/8088 assembler is invoked as needed. Unless otherwise directed, the compiler automatically calls all phases as needed. Arguments may be passed to the compiler directly from the keyboard or indirectly from disk files. The compiler can generate code to run in a machine with 64 Kbytes of memory for the 8080 model, 48 Kbytes TPA or with 128 Kbytes memory (small model, up to 64 Kbytes code segment and 64 Kbytes data segment.

Features:

- All C operators
- Standard data types: 8 bits char; 16 bits short, int, unsigned; 32 bits long, float; 64 bits double
- Unsigned datatypes such as unsigned char, short, int, and longs

- Floating point (fully supported 32-bit long and 64-bit double)
- Storage classes including extern, static, auto and register
- Structures including unions, structs, multi-dimension arrays, and bit-fields
- Recent changes to C
- Enumeration and void data types
- Structures may be assigned, passed as arguments to functions, and returned by functions
- Keywords - Int, char, float, double, struct, union, long, short, unsigned, auto, extern, register, typedef, static, goto, return, sizeof, break, continue, if, else, for, do, while, switch, case, default, void, enum
- Preprocessor - #define, #undef, #include, #if, #ifdef, #ifndef, #else, #line and #endif. Macros are supported.
- UNIX I/O support - Command line arguments are supported using argc and argv. Redirection of stdin and stdout on command line.
- Debugging - Designed for use with symbolic debugger from Mark Williams. A compiler option produces assembly code which can be examined, modified and assembled.

Trademark: MWC-86 is a trademark of Mark Williams Co.

UNIX is a trademark of AT&T Bell Laboratories

CP/M is a registered trademark of Digital Research, Inc.

Price: $500

Pascal

SPD Number: 25.11
Operating System: MicroVMS, VMS
Keywords: Compilers
Debugging
Programming tools

Distribution media: 9-track 1600 bpi magnetic tape, RA60, RL02, RX01, RX50, TK50, TU58 DECtape II cartridge.

VAX Pascal is a superset of standard Pascal and includes many powerful extensions to permit more programming versatility. The extensions provide exponentiation functions, string-handling facilities, type casting, separate compilation of procedures and functions, and sophisticated error-handling facilities.

VAX Pascal accepts programs compatible with ISO standard 7185-1983 Levels 0 and 1, ANSI/IEEE Standard 770X3-97 1983, and the Federal Information Processing Standard Publication (FIPS-109). VAX Pascal

allows for full use of the VAX Symbolic Debugger to help programmers find errors in application programs and can be used with the full set of VAX/VMS Programmer Productivity Tools and VMS utilities.

Price: Available upon request

Pascal/RSX, Version 1.1

SPD Number: 14.18
Operating System: RSX
Keywords: Compilers
Programming tools

Distribution media: 9-track 800/1600 bpi magnetic tape, RK06, RK07, RL01, RL02.

This implementation of the Pascal language accepts programs compatible with Level 0 of the ISO Specification for the Computer Programming Language Pascal (Draft International Standard 7185). This multipass optimizing compiler provides all standard Pascal data types and statements as well as extensions.

PDP-11 Pascal/RSX programs can be compiled in interactive mode or with an indirect command file. The PDP-11 Pascal/RSX compiler performs optimizations designed to improve execution speed, including constant folding, constant conversion, constant pooling, and global register assignment. Optional instruction to the compiler and input and output file attributes are specified by compiler switches that perform various functions. After compilation, the RSX Task Builder is used to produce an executable image file and to provide support for both relocatable and resident object libraries.

PDP-11 Pascal/RSX allows use of the FORTRAN standard calling sequence, permitting Pascal programs to communicate with FORTRAN-callable system routines for real-time applications. However, routines written in FORTRAN cannot be called from PDP-11 Pascal/RSX. In addition, PDP-11 Pascal/RSX programs can call RSX system services for process-control operations, system directives, and special peripheral access.

A version of this product is available for the VAX computer.

Price: Available upon request

PDP-11 FORTRAN-77 DEBUG/VAX to RSX

SPD Number: 26.75
Operating System: VMS
Keywords: Debugging
Programming tools

Distribution media: RX01, TU58 DECtape II cartridge.

This fully symbolic debugger for FORTRAN-77 and MACRO-11 programs running on VAX/VMS under VAX-11 RSX is a tool to aid in finding the location of programming errors in successfully compiled programs that do not execute properly. PDP-11 FORTRAN-77 DEBUG runs as a 2-task debugger. A small portion of the code, necessary to debug applications, is linked with the user task, and the major portion of the debugger runs as a separate task.

The debugger provides access to program symbols by reading the symbol table file produced by the task builder. PDP-11 FORTRAN-77 DEBUG can understand symbols produced by PDP-11 FORTRAN-77 and MACRO-11.

Price: $480 - $800

Performance and Coverage Analyzer

SPD Number: 26.76
Operating System: MicroVMS, VMS
Keywords: Application development
Data collection
Debugging
Development tools
Programming tools

The VAX Performance and Coverage Analyzer is a tool to help VMS and MicroVMS users analyze the execution behavior of their applications and tune the performance and testing of their programs. The analyzer is not a tool for analyzing operating system performance or for hardware resource planning. Rather, the program's two functions are to pinpoint execution bottlenecks and other performance problems in applications and to provide test coverage analysis by measuring what parts of a software program are or are not executed by a given set of test data.

The VAX Performance and Coverage Analyzer consists of the collector, which gathers performance or test coverage data on the running software program, and the analyzer, which later processes and displays the collected data. The collector gathers the performance data and writes that information to a data file. After the data has been collected, the analyzer can be run using that data file for input.

The analyzer is a separate program that reads the data file produced by the collector and presents the results as performance histograms or other displays.

Price: $7,000

PL/I

SPD Number: 25.30
Operating System: MicroVMS, VMS
Keywords: Compilers
Database management
Programming tools
Scientific

Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TU58 DECtape II cartridge.

VAX PL/I is an extended implementation of the ANSI X3.74, American National Standard PL/I General Purpose Subset. VAX PL/I extensions include compatibility features with industry-standard implementations and ANSI full-language features as well as VAX/VMS system-specific features. VAX PL/I consists of a shareable compiler, a HELP facility, and INCLUDE files for system services. The VAX PL/I compiler generates optimized, position-independent machine code.

VAX PL/I is a comprehensive and powerful programming language that supports scientific computation, commercial data handling and data organization, and extensive string manipulation. The block structuring provided by the PL/I language helps to reduce the costs of program development and support.

Price: $797 - $7970

PRO/BASIC, Version 1.3

SPD Number: 40.05
Operating System: P/OS
Keywords: Application development
Programming tools
Development tools
Languages
Personal computing

PRO/BASIC is a highly interactive conversational programming language. It emphasizes ease-of-use and is well suited for the everyday programming needs of the end-user. PRO/BASIC uses simple English language-like statements and familiar mathematical notations to perform operations.

PRO/BASIC is comparable in function to most personal computer BASIC implementations, and yet maintains a high degree of compatibility with the BASIC language available on DIGITAL's larger PDP-11 and VAX systems.

Price: $195

PRODUCER

SPD Number: 26.52
Operating System: MicroVMS, VMS
Keywords: Graphics
Pre- and postprocessors
Programming tools

Memory required: 1 Mbyte. Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TU58 DECtape II cartridge.

VAX PRODUCER allows users to create visually-based interactive programs, such as computer-based instruction (CBI) and point-of-purchase, marketing demonstration, or information-retrieval systems. VAX PRODUCER programs include a visual component created by the VAX DRAW Graphics Editor and an interactive/branching component created using the VAX DESIGN Development Language. VAX DRAW allows a user to create screen displays and store them in a file called a display library. The VAX DESIGN Development Language is used to control the interaction with the user and the result of that interaction. VAX DESIGN source programs are preprocessed and are linked into a file containing a pseudo-machine language that is system and address space independent. Programs written in the VAX DESIGN Development Language on a VAX/VMS or MicroVMS system can be run without modification on any system with a VAX PRODUCER Interpreter, which reads from the pseudocode file and display library to present the information and interact with the user.

Price: Available upon request

Professional Host Tool Kit

SPD Number: 30.28
Operating System: RSX, VMS
Keywords: Application development
Compilers
Language enhancers
Programming tools

Distribution media: PDP: 9-track 800/1600 bpi magnetic tape, RK07, RL02. VAX: RX01, TU58 DECtape II cartridge.

These programming tools and libraries allow development of applications for the Professional 300 computer systems. Programming languages available to the developer for building Professional-based applications are BASIC-PLUS-2, COBOL-81, DIBOL, FORTRAN-77, MACRO-11, and Pascal.

A host VAX/VMS, RSX-11M, or RSX-11M-PLUS system is used for application development. An editor provided with the host system is used to develop source files. MACRO-11 or a separately available Tool Kit language is used to assemble or compile the source program. The program is then linked against the libraries provided with the Tool Kit, and the frame builder is used to prepare the menu and help frames. The resultant files are then transferred to a Professional 350 or Professional 380 with hard disk for debugging.

Price: $800

Professional Host Tool Kit BASIC-PLUS-2

SPD Number: 40.23
Operating System: P/OS
Keywords: Application development
Debugging
Programming tools
Personal computing

Distribution media: PDP: 9-track 800/1600 bpi magnetic tape, RK07, RL02. VAX: 9-track 1600 bpi magnetic tape, RX01 TU58 DECtape II cartridge.

This significantly extended BASIC compiler takes full advantage of the floating-point and integer instructions and generates threaded code. BASIC-PLUS-2 provides a high-performance program execution environment for applications development and timesharing.

An application is compiled on systems running RSX-11M, RSX-11M-PLUS, or VMS as part of the Professional Host Tool Kit and is subsequently linked and moved to the Professional 350 for debugging and execution.

Price: $1200

Professional Host Tool Kit COBOL-81

SPD Number: 30.31
Operating System: RSX, VMS
Keywords: Compilers
Programming tools

Memory required: 256 Kbytes. Distribution media: RSX: 9-track 800/1600 bpi magnetic tape, RK07, RL02. VMS: RX01, TU58 DECtape II cartridge.

This high-level language for business data processing generates programs for execution under control of the P/OS operating system. Based on the ANSI COBOL Standard (X3.23-1974) and including some of the features planned for the next COBOL standard, this COBOL-81 is compatible with COBOL-81/RSX, is a subset of VAX COBOL, and includes various DIGITAL extensions to COBOL, including screen handling at the source language level.

Price: $1200

Professional Host Tool Kit DIBOL

SPD Number: 30.26
Operating System: RSX, VMS
Keywords: Application development
Compilers
Language enhancers
Programming tools

Distribution media: PDP: 9-track 800/1600 bpi magnetic tape, RK07, RL02. VAX: RX01, TU58 DECtape II cartridge.

This high-level procedural language for interactive business data processing allows development of DIBOL application programs for the Professional 300 series of computers on a VAX/VMS, RSX-11M, or RSX-11M-PLUS host system. DIBOL program development consists of compiling the DIBOL source program using the DIBOL-83 compiler, linking the object programs with external subroutines and library modules, and developing any required HELP or menu frames with the Frame Development Tool on the host system. The application and any frame files can then be transferred to the Professional system over a standard terminal interface line and executed and debugged on a Professional Series computer.

Professional Host Tool Kit DIBOL is based on the DIBOL Standards Organization's DIBOL-83 definition of the language. Professional Host Tool Kit DIBOL is highly compatible with DIBOL-83 implementations on other operating systems, including RSTS/E, RSX-11M-PLUS, CTS-300, and VAX/VMS, as well as PRO/Tool Kit DIBOL, which allows applications to be developed on the Professional 350 computer

with hard disk. The language also provides Professional Series 300-specific extensions while retaining the capabilities and advantages of DIBOL-83.

Price: $900 - $1200

Professional Host Tool Kit FORTRAN-77

SPD Number: 30.38
Operating System: RSX, VMS
Keywords: Application development
Compilers
Debugging
Programming tools

Memory required: 256 Kbytes. Distribution media: RSX: 9-track 800/1600 bpi magnetic tape, RK07, RL02. VMS: RX01, TU58 DECtape II cartridge.

This extended implementation of the ANSI subset FORTRAN-77 Standard (X3.9-1978) runs on the Professional 300 Series Applications Development System and contains the features of the ANSI FORTRAN-77 subset, many of the full-set language features, and extensions that are not included in the ANSI FORTRAN-77 Standard. Switch-selectable support is provided for user programs, based on the previous ANSI FORTRAN Standard (X3.9-1966).

Professional Host Tool Kit FORTRAN-77 meets the FIPS PUB-69 requirement for a flagger. The flagger optionally produces diagnostic messages for syntax and/or source form elements that do not conform to the full-level ANSI FORTRAN Standard (X3.9-1978).

An application is compiled on systems running RSX-11M, RSX-11M-PLUS, or VAX/VMS, as part of the Professional Host Tool Kit, and is subsequently linked and moved to the Professional 350 with hard disk for debugging and execution.

Price: $780 - $1200

Professional Host Tool Kit FORTRAN-77 DEBUG

SPD Number: 40.25
Operating System: P/OS
Keywords: Debugging
Diagnostics
Programming tools
Personal computing

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02, RX01, TU58 DECtape II cartridge.

This fully symbolic debugger for FORTRAN-77 and MACRO-11 runs on the Professional 300 Series Applications Development System and helps users locate programming errors in successfully compiled programs that do not execute properly. Professional Host Tool Kit FORTRAN-77 DEBUG runs as a 2-task debugger. A small portion of the code, necessary to debug applications, is linked with the user task. The major portion of the debugger runs as a separate task. The debugger provides access to program symbols by reading the symbol table file produced by the task builder on the host operating system and can understand symbols produced by Professional Host Tool Kit FORTRAN-77 and MACRO-11.

Price: Available upon request

Professional Host Tool Kit Pascal

SPD Number: 30.30
Operating System: P/OS
Keywords: Application development
Compilers
Language enhancers
Programming tools
Personal computing

Distribution media: PDP: 9-track 800/1600 bpi magnetic tape, RK07, RL02. VAX: RX01, TU58 DECtape II cartridge.

This extended implementation of the Pascal language helps the application programmer access the P/OS system capabilities and simplifies application design. VAX Pascal is compatible with the ISO and ANSI Pascal standards.

Professional Host Tool Kit Pascal is a true optimizing compiler. The software, which runs on a host VAX/VMS, RSX-11M, or RSX-11M-PLUS system, generates PDP-11 instructions for eventual execution on a target Professional 300 Series system. The compiler runs in the Tool Kit environment. The generated code has full access to the graphics library, menu services, and communications services.

Price: $780 - $1200

Professional Host Tool Kit PDP-11 Symbolic Debugger, Version 2.0

SPD Number: 30.42
Operating System: RSX, VMS
Keywords: Debugging
Diagnostics
Programming tools

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02, RX01, TU58 DECtape II cartridge.

Formerly the Professional Host Tool Kit FORTRAN-77 DEBUG.

This fully symbolic debugger for FORTRAN-77 and MACRO-11 runs on the Professional 300 Series Applications Development System and helps users locate programming errors in successfully compiled programs that do not execute properly. Professional Host Tool Kit PDP-11 Symbolic Debugger runs as a 2-task debugger. A small portion of the code, necessary to debug applications, is linked with the user task. The major portion of the debugger runs as a separate task. The debugger provides access to program symbols by reading the symbol table file produced by the task builder on any of the host operating systems and can understand symbols produced by Professional Host Tool Kit FORTRAN-77, Professional Host Tool Kit COBOL-81, and MACRO-11.

Price: Available upon request

PRO/Tool Kit COBOL-81, Version 2.3

SPD Number: 40.24
Operating System: P/OS
Keywords: Application development
Debugging
Development tools
Programming tools
Personal computing

PRO/Tool Kit COBOL-81 is a high-level language for business data processing that generates programs for execution under control of the P/OS operating system. It is based on the 1974 ANSI COBOL Standard X3.23-1974 and includes some of the features planned for the next COBOL standard. This COBOL-81 is compatible with COBOL-81/RSX, is a subset of VAX COBOL, and includes various DIGITAL extensions to COBOL, including screen handling at the source language level. PRO/Tool Kit COBOL-81 meets the low-intermediate level requirements of the United States Government, as described in FIPS PUB21-1.

PRO/Tool Kit COBOL-81 shares many common features with VAX COBOL. These features are implemented with the same syntax and semantics on both compilers. In this way, source code developed using COBOL-81 may be migrated to VAX COBOL. Additionally, a VAX/VMS system may be used to develop a code that will eventually be compiled using COBOL-81.

Price: $495

PRO/Tool Kit DIBOL

SPD Number: 40.22
Operating System: P/OS
Keywords: Application development
Debugging
Development tools
Programming tools
Personal computing

PRO/Tool Kit DIBOL is a high-level language designed for developing business data processing applications for the Professional systems. It takes extensive advantage of the Professional's architecture, allowing for the use of P/OS system service while maintaining many of the standard DIBOL features found on VMS, RSX-11-Plus, Micro/RSX, RSTS/E, CTS-300, and COS-310 systems.

PRO/Tool Kit DIBOL lets the user develop programs directly on a Professional running P/OS hard disk. Because the DIBOL debugging tool is part of the run-time system, debugging is always done on the Professional in a distributed development environment. DIBOL source programs that do not access Professional-specific features can be moved to other operating systems to run under any standard DIBOL implementation.

PRO/Tool Kit DIBOL consists of a compiler, a run-time system (RTS) implemented as a clusterable resident library, and the symbolic program debugging aid DDT (DIBOL Debugging Technique). DIBOL programs for the Professional can use such P/OS system services as the menu, HELP, graphics, SORT, FMS, and message facilities. The language also uses the Professional's Record Management System (PRO/RMS) to support a powerful flexible file system.

Price: $495

PRO/Tool Kit FORTRAN-77, Version 5.0

SPD Number: 40.21
Operating System: P/OS
Keywords: Application development
Debugging
Development tools
Programming tools
Personal computing

PRO/Tool Kit FORTRAN-77 is an extended implementation of the ANSI subset FORTRAN-77 standard (X3.9-1978) that runs on the Professional 300 series of computer systems. PRO/Tool Kit FORTRAN-77 contains the features of the ANSI FORTRAN-77 subset, many of the full-set language features, and extensions that are not included in the ANSI FORTRAN-77 standard. Switch selectable support is provided for user programs based on the previous ANSI FORTRAN standard (X3.9-1966). PRO/Tool Kit FORTRAN-77 meets the Federal Information Processing Standard Publication (FIPS PUB-69) requirements for a flagger. The flagger optionally produces diagnostic messages for syntax and/or source form elements that do not conform to the full-level ANSI FORTRAN X3.9-1978 standard.

An application is compiled on a Professional 350 running the PRO/Tool Kit. Subsequent linking is against the libraries provided with the PRO/Tool Kit FORTRAN-77, and the Frame Development Tool is used to prepare the menu and help frames. The application can then be executed and debugged on the Professional 350. PRO/Tool Kit FORTRAN-77 programs can be optionally executed under control of PRO/Tool Kit FORTRAN-77 DEBUG.

PRO/Tool Kit FORTRAN-77 includes all subset ANSI features including CHARACTER data-type, and Block IF construct, including IF...THEN, ELSE IF, ELSE, and END IF statements for conditional execution of blocks of statements.

The compiler includes features of full-language FORTRAN as defined by the ANSI standard.

PRO/Tool Kit FORTRAN-77 includes extensions to the ANSI standard such as language elements for keyed and sequential access to RMS multikey ISAM files; DEFINE FILE, FIND, DELETE, REWRITE, and UNLOCK statements; TYPE and ACCEPT input/output statements; and comments permitted at the end of each source line.

The compiler produces direct PDP-11 machine code optimized for execution time-efficiency on a Professional with a floating-point adapter.

The Object Time System (OTS) is a set of object modules shared by FORTRAN-77 applications from a clustered library in P/OS, the operating system on which the task (program) will execute. PRO/Tool Kit FORTRAN-77 provides an OTS based on Record Management Services allowing access to sequential, relative, and indexed organization files.

Price: $495

PRO/Tool Kit Pascal, Version 1.2

SPD Number: 40.20
Operating System: P/OS
Keywords: Application development
Debugging
Development tools
Programming tools
Personal computing

PRO/Tool Kit Pascal is an extended implementation of the Pascal language for use on Professional 300 series computers. The extensions assist the application programmer in accessing the P/OS system capabilities and simplify application design. In addition, there is a high degree of compatibility with VAX Pascal and the ISO and ANSI Pascal standards.

PRO/Tool Kit Pascal is a true, optimizing compiler, generating PDP-11 instructions for eventual execution on a Professional 300 series system. The generated code has full access to the graphics library, menu services, and communications services.

Pascal is a structured, high-level programming language that provides a modular, systematic approach to computerized problem-solving using simple verb commands.

Price: Available on request

PRO/Tool Kit Real-Time Interface Library, Version 2.0

SPD Number: 40.35
Operating System: P/OS
Keywords: Languages
Library
Personal computing

The Professional/Tool Kit Real-Time Interface Library (PRTIL) provides high-level support for the development of programs for the Real-Time Interface (RTI) Library. An efficient alternative to working in MACRO-11, PRTIL is a set of callable subroutines that provide access to a P/OS driver for the RTI. Users can call PRTIL subroutines from

Tool Kit BASIC-PLUS-2, FORTRAN-77, or Pascal. PRTIL is packaged separately from the RTI hardware; applications developed using PRTIL will run on any Professional configured with P/OS hard disk and the RTI.

The required PRTIL subroutines are linked selectively to the calling application tasks. PRTIL supports I/O operations that are synchronous with the calling task (that is, the task waits to continue execution until the I/O is complete). It also supports I/O operations that are asynchronous with the calling task (that is, task execution may proceed independent of the completion of I/O operations).

PRTIL provides four major types of operations: hardware utilization, determination of handshaking or flow control protocols, data transfers, and utility routines.

Price: $250

PRO/Tool Kit, Version 3.0

SPD Number: 40.19
Operating System: P/OS
Keywords: Application development
Development tools
File transfer
Graphics
Languages
Programming tools
Personal computing

PRO/Tool Kit consists of programming tools and libraries that allow development of applications for Professional 300 series computer systems. Programming languages available to the developer for building Professional-based applications are: COBOL-81, DIBOL, FORTRAN-77, Pascal, BASIC-PLUS-2, and MACRO-11.

The development process is performed on a Professional 350 or 380 standalone system with hard disk or any workstation connected to a Professional 300 series server. MACRO-11 or a separately available PRO/Tool Kit language is used to assemble or compile the source program. The program is then linked against the libraries provided with the PRO/Tool Kit, and the Frame Development Tool is used to prepare the menu and HELP frames. The application can then be executed and debugged on the Professional development system.

Features include:

- RMS - Service routines that provide a file and record management interface between the Professional operating system (P/OS) and application programs. User programs interface to RMS through

statements or function calls that provide logical record I/O to data files. RMS supports sequential, relative, and multikeyed indexed sequential (ISAM) file organizations.

- FMS - Forms-oriented, video I/O management system designed for use as an independent front-end that logically off-loads the complexities of video I/O management from the application programmer. Call statements from high-level language interfaces are provided for the supported languages.
- SORT - A subroutine is provided that can be contained in an application program to call a sort program with capabilities that include record sort and tag sort. Support for collating sequences other than English is provided.

Price: $520

RM/COBOL™

SPD Number: A2.22
Operating System: P/OS
Keywords: Personal computing
COBOL
Compilers
Languages
Programming tools

Ryan-McFarland COBOL is a high-level microcomputer implementation of the ANSI 74 COBOL standard. With RM/COBOL, the user can develop and execute COBOL business applications on a Rainbow 100 or DECmate II system.

Features:

- Offers level-2 relative and indexed file access methods, including alternate and duplicate keys.
- The compiler generates ready-to-execute object programs with only a single pass.
- RM/COBOL possesses full arithmetic capability, including CORRESPONDING and COMPUTE.
- Extended computational data types include binary and IBM packed decimal types.
- RM/COBOL is a GSA-certified COBOL, based on the American National Standard (ANSI) X3.23 (1974).

Trademark: RM/COBOL is a trademark of Ryan-McFarland Corporation.

Price: $600

RPG II

SPD Number: 13.21
Operating System: RSTS, RSX
Keywords: Compilers
Data conversion

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02.

This programming language for business data processing operations involving data file manipulation and report generation runs on RSTS/E, RSX-11M, and RSX-11M-PLUS operating systems. User application programs are developed with defined specifications that indicate file description, input, output, calculation, and control parameters. The PDP-11 RPG II compiler translates a set of program specifications into machine language instructions. Those instructions are linked with PDP-11 RPG II object-time library routines and executed on the appropriate PDP-11 operating system. A set of utility programs is provided to help users convert existing RPG II programs and related data files, previously developed on non-DIGITAL systems, to the form required by PDP-11 RPG II.

An RPG II program is defined by the user specification of the exact, detailed description of input data, output formats, and desired processing steps.

Price: Available upon request

RSX MDE/T-11 (Microcomputer Development Environment), Version 1.0

SPD Number: 14.23
Operating System: RSX
Keywords: Debugging
Microprocessor development
Real time
Simulation

Distribution media: 9-track 1600 bpi magnetic tape, RK05, RK06, RK07, RL01, RL02.

This hardware/software in-circuit emulation development system for the Micro/T-11 16-bit microprocessor offers features for observing, controlling, and simulating the hardware interface between the processor and external circuitry, without impacting the speed, performance, or operating environment of the Micro/T-11. RSX MDE/T-11 includes a MACRO-11 source language debugger.

Price: Available upon request

RSX-11M-PLUS DIBOL, Version 1.1

SPD Number: 14.24
Operating System: RSX
Keywords: Compilers
Language enhancers

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02.

This high-level procedural language for interactive business data processing runs under the RSX-11M-PLUS operating system, taking advantage of the system facilities. RSX-11M-PLUS DIBOL is based on the DIBOL Standards Organization's DIBOL-83 definition of the language. RSX-11M-PLUS DIBOL is highly compatible with DIBOL-83 implementations on other operating systems, including VAX/VMS, RSTS/E, CTS-300, and P/OS. RSX-11M-PLUS DIBOL also provides RSX-11M-PLUS-specific extensions and an expansion path for applications requiring the power of RSX-11M-PLUS while retaining the capabilities and advantages of DIBOL-83.

DIBOL provides efficient terminal handling and efficient access to the RSX-11M-PLUS Record Management Services (RMS); RMS provides sequential record access, relative record access, and multikey indexed sequential record access.

DIBOL-83 supports a set of language statements commonly referred to as structured constructs. Those new statements are designed to complement and facilitate desirable programming practices.

The DIBOL compiler reads a source program and produces an object module. The compiler can produce a source listing with embedded diagnostics.

The RSX-11M-PLUS DIBOL product includes a compiler, a run-time library, external subroutine libraries, the DIBOL Debugging Technique, and the ability to communicate between programs.

Price: $1200 - $3000

RT-11 MDE/T-11 (Microcomputer Development Environment), Version 1.0

SPD Number: 12.64
Operating System: RT-11
Keywords: Development tools
Debugging
Microprocessor development
Real time
Simulation

Distribution media: RK05, RL01, RL02, RX01, RX02, TU58 DECtape II cartridge.

This hardware/software in-circuit emulation development system for the Micro/T-11 16-bit microprocessor offers features for observing, controlling, and simulating the hardware interface between the processor and external circuitry, without impacting the speed, performance, or operating environment of the Micro/T-11. RT-11 MDE/T-11 includes a MACRO-11 source language debugger.

Price: Available upon request

TDMS (Terminal Data Management System)

SPD Number: 25.71
Operating System: MicroVMS, VMS
Keywords: Application control
Forms management
Information management
Programming tools
VAX information architecture

Distribution media: 9-track 1600 bpi magnetic tape, RA60, RC25, RK07, RL02.

VAX TDMS is a set of software tools designed to reduce the life-cycle costs of developing and maintaining interactive computer applications in which terminal keyboards and screens are used extensively to enter and display data. VAX TDMS is a programmer productivity tool for screen-based applications and a fourth-generation-like record-level interface for defining screen/program data exchange. VAX TDMS couples the 4GL record-level interface to 3GL applications, relieves application programs of terminal I/O-specific code, provides a terminal subsystem for ACMS, and provides forms-management capabilities to DATATRIEVE users. Run-time access is provided for the MicroVAX I and the VAXstation I; run-time and development capabilities are available for the MicroVAX II and the VAXstation II.

VAX TDMS applications range from database inquiry/response/update to real-time uses such as the periodic display of an industrial process. VAX TDMS is typically used as a terminal subsystem in terminal data management applications such as inventory control, manufacturing, distribution, and other forms-intensive applications. As a terminal subsystem, VAX TDMS can reduce the application development and maintenance effort by replacing application program logic, specific to terminal interaction, with definitions that are external to the program.

TDMS is integrated with the VAX Information Architecture, in which definitions of data, screen formats, and program and terminal data exchanges are treated as commonly shared resources, thus greatly reduc-

ing the development and maintenance costs of individual applications. For applications using the same data and definitions, much redundant programming effort is eliminated.

Price: Available upon request

VAX ACMS (Application Control and Management System), Version 2.0

SPD Number: 25.50
Operating System: MicroVMS, VMS
Keywords: Application control
Application development
Information management
Order management
VAX information architecture

Distribution media: 9-track 1600 bpi magnetic tape, RA60, RK07, RL02.

VAX ACMS simplifies the development and control of complex, on-line applications, including transaction processing, inventory control, order administration, and accounting applications. VAX ACMS can also be used to create the operational environment in which to run those applications. VAX ACMS reduces application development and maintenance time by replacing a significant amount of run-time parameters and application code with definitions stored in the VAX Common Data Dictionary.

An integrated member of the VAX Information Architecture, VAX ACMS stores its definitions in the COD and uses TDMS for menu processing. VAX ACMS also accesses DBMS and Rdb databases, as well as standard VAX files.

Price: Available upon request

VAX Ada®

SPD Number: 26.60
Operating System: MicroVMS, VMS
Keywords: Compilers
Debugging
Programming tools
Real time

Distribution media: 9-track 1600 bpi magnetic tape, RA60, RK07, RL02, RX50.

VAX Ada is DIGITAL's government-validated implementation of the full ANSI-MIL-STD-1815-A-1983 Ada language. The VAX Ada compiler runs under the VAX/VMS and MicroVMS operating systems and generates optimized, shareable, and position-independent code.

As a native-mode VAX/VMS language, VAX Ada is integrated into the VAX/VMS common language environment. Full symbolic debugging and VAX/VMS system services and utilities are thus available to programs written in VAX Ada. VAX Ada supports VAX Record Management Services (RMS), including sequential, relative, and indexed file organizations and associated access methods. VAX Ada programs can invoke modules written in other VAX/VMS languages. Additionally, programs written in other languages can invoke VAX Ada modules.

VAX Ada is suitable for systems, computational, general, and, especially, real-time computing needs. In addition to being a suitable language for real-time applications, Ada gives the programmer features for multi-tasking one of its many powerful language features. VAX Ada is particularly ideal for large applications, such as major systems implementations, in environments in which development and maintenance costs are of great concern.

Price: $4980 - $37,350

VAX COBOL Generator, Version 1.0

SPD Number: 27.16
Operating System: VMS, MicroVMS
Keywords: Development tools
Language processors
Fourth generation language

The VAX COBOL Generator is a screen-oriented program generator that produces VAX COBOL source programs. Commercial programmers use the VAX COBOL Generator as a productivity tool for the creation and maintenance of data processing applications. The programmer can create or modify a program by choosing icons that represent the components making up the program (menus, screens, etc.). From this input, the VAX COBOL Generator will produce a VAX COBOL source file that can be used like any other source program. The VAX COBOL Generator can be used for rapid prototyping and that program can later be expanded and refined to become a production application. By using the VAX COBOL Generator, programmers can produce and maintain VAX COBOL programs in much less time than by traditional manual coding.

The VAX COBOL Generator can produce programs that call subprograms written in other VMS languages as well as many Run-Time Library routines and system services. Similarly, programs produced by the VAX COBOL Generator can be called by other VMS products adhering to the VAX Calling Standard. The default screen interactions use the VAX COBOL extensions to the ACCEPT and DISPLAY statements. However, the VAX COBOL Generator can produce screen applications that use other screen packages such as VAX FMS (Forms Management System). These VAX COBOL source programs can be debugged as necessary by the VAX Symbolic Debugger.

The VAX COBOL Generator provides a data dictionary facility which allows the application designer to store common data definitions. This provides a single point of control so that data elements used in a single or multiple application need only be changed once. The application, or applications, can then be regenerated, incorporating the changes. Optionally, VAX CDD record definitions can be used.

Price: $3600 - $30,000

VAX DSM, Version 3.0

SPD Number: 25.08
Operating System: MicroVMS, VAX/VMS
Keywords: Data management
Development tools
Languages
Precompiler

This multiuser data management system includes DIGITAL Standard MUMPS (DSM). This high-level interpretive language is a superset of the American National Standard MUMPS specification X11.1-1984. The shareable, reentrant interpreter operates under the VAX/VMS and MicroVMS operating systems to take advantage of the packed decimal and character string instruction set, the virtual memory, and the I/O capabilities of the operating system.

The DSM language is directed primarily toward the processing of variable-length string data, making interactive database systems easier to implement and maintain. The VAX DSM language includes the following extensions to the ANSI standard MUMPS specifications:

- A $ZCALL function for procedure calls to routines written in languages other than DSM.
- Language elements for access to a subset of the I/O options of VMS, including terminals, mailboxes and VAX RMS sequential, relative, and indexed sequential files.

- A symbolic debugger which aids in the development and maintenance of DSM applications. The debugger permits the user to set break and watch points and to monitor the current state of the call stack.

Price: Available upon request

VAX RPG II

SPD Number: 26.05
Operating System: MicroVMS, VMS
Keywords: Compilers
Language enhancers
Report generator
Text management

Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TU58 DECtape II cartridge.

VAX RPG II, an extended implementation of the RPG II language developed by IBM® as a problem-oriented language for commercial applications, includes DIGITAL extensions for integration with the VAX/VMS architecture. This language processor provides a convenient means of preparing reports and other commercial data processing applications. VAX RPG II consists of a compiler, an editor, and Run-Time Library (RTL) support.

As a native-mode VAX/VMS language, VAX RPG II is integrated into the VAX/VMS common language environment. VAX RPG II programs can invoke, as functions, modules written in other VAX/VMS languages as well as many RTL routines and VAX/VMS or MicroVMS system services and utilities. VAX RPG II uses VAX-11 Record Management Services (RMS) for its file support. Thus, files created by VAX RPG II can be processed by other VAX/VMS languages and vice versa. VAX RPG II programs may be debugged with the VAX Symbolic Debugger.

The VAX RPG II compiler produces an object module from a source program linked into an executable image using the VAX linker. The compiler optionally produces a source listing with embedded diagnostics indicating the line and column of a source code error, a machine language listing, and a cross-reference listing.

The VAX RPG II editor is a full-screen interactive keypad editor that is tailored toward RPG program development and modification. The editor screen is divided into two parts. The bottom part contains RPG source code of the file being edited. The top part can also contain RPG source code or, if requested, a variety of HELP information, including a layout of the type of RPG specification being edited or a diagram of the keypad. A ruler of column numbers is provided on the screen to help users locate where fields should be entered.

Trademark: IBM is a registered trademark of International Business Machines Corporation.

Price: Available upon request

VAX SCAN, Version 1.0

SPD Number: 26.93
Operating System: VMS, MicroVMS
Keywords: Application development
Data conversion
Development tools
Filters
Translators
Utilities

VAX SCAN is a high-level language designed for text processing that operates under the VAX/VMS or MicroVMS operating system. In addition to the commonplace string operators such as concatenation, substring extraction, and comparison, VAX SCAN has powerful constructs for matching and sorting complex text patterns. These capabilities make VAX SCAN particularly useful for building filters, translators, extractors, preprocessors, and parsers.

As a native-mode VAX language, VAX SCAN is integrated into the VMS common language environment. VAX SCAN programs can invoke and be invoked by routines written in other VMS languages as well as many run-time library routines and VAX/VMS or MicroVMS system services and utilities. VAX SCAN programs may be debugged using the VAX Symbolic Debugger. VAX SCAN is also integrated with the VAX Language-Sensitive Editor to further aid in the development of programs.

VAX SCAN is implemented as an optimizing compiler that produces standard VMS object modules. These modules can be linked with modules written in other VMS languages to produce an executable image that can be executed by the VMS RUN command.

Price: $4,500

VAX-11/750 G & H Format Microcode

SPD Number: 25.66
Operating System: VMS
Keywords: File management
Microprocessor development
Pre- and postprocessors

Distribution medium: TU58 DECtape II cartridge.

This package implements the G-floating and H-floating extended range and precision floating-point format instructions and a microcode loader. The G & H floating-point formats expand the exponent range up to 10^{+4932} and the precision up to 33 digits. The microcode loader allows the system manager to control the loading of microcode into KU750 UCS hardware. The loader also provides for the reloading of microcode upon power-fail recovery of systems with main memory backup.

The VAX-11/750 G & H Format Microcode uses 1KW of control store provided by the KU750 and cannot be used concurrently with any other UCS microcode.

Price: Available upon request

VAX-11/780 Microprogramming Tools

SPD Number: 25.09
Operating System: VMS
Keywords: Assemblers
Microprocessor development
Programming tools
Source code control

Distribution medium: RX01.

These tools enable a programmer to assemble and load microprograms for the User Writable Control Store (UWCS) option of the VAX-11/780 central processor. The tools consist of four features:

- MICRO-2 is an assembler written in BLISS-32 for user-written source microcode.
- VAXDEF, the definition file, describes the VAX-11/780 microarchitecture to the assembler. The definition file contains customer-written microcode statements. The output of the assembler is an object file containing absolute microcode and a listing file containing the user source microcode and related microcode output.
- MICLD is a utility program to load VAX-11/780 CPU UWCS memory from a VAX-11/780 WCS microprogram object file. The utility program runs as a privileged task under VAX/VMS.
- A tool verification test invokes a sample program to ensure that the tools have been installed correctly.

Price: Available upon request

VAX-11/785 Microprogramming Tools

SPD Number: 26.63
Operating System: VMS
Keywords: Assemblers
Microprocessor development
Programming tools

Distribution medium: RX01.

These tools enable a programmer to assemble and load microprograms for the User Writable Control Store (UWCS) feature of the VAX-11/785 central processor.

VAX-11/785 Microprogramming Tools consist of:

- MICRO-2, an assembler for user-written source microcode
- 785DEF, the definition file that describes VAX-11/785 microarchitecture to the assembler. The definition file is assembled with the file containing customer-written microcode statements. The output of the assembler is an object file containing absolute microcode and a listing file containing the user source microcode and related microcode output.
- MICLD, a utility program to load the User Writable Control Store memory of a VAX-11/785 CPU from VAX-11/785 WCS microprogram object file. The utility program runs as a privileged task under VAX/VMS.
- A tool verification test that invokes a sample program to ensure that the tools have been installed correctly. The user must ensure the correct operation of all DIGITAL-supplied software when the VAX-11/785 UWCS is loaded with user-written microcode.

Price: Available upon request

VAXELN Toolkit, Version 2.1

SPD Number: 28.02
Operating System: MicroVMS, VMS
Keywords: Compilers
Debugging
Programming tools
Real time

Distribution media: 9-track 1600 bpi magnetic tape, RC25, RK07, RL02, RX50.

This VMS layered product is for the development of dedicated, real-time VAXELN systems that run on VAX and MicroVAX processors. A finished VAXELN system runs on the target computer by itself, without the presence of another operating system.

Typical applications include industrial automation, workstations for a particular profession, Ethernet server networks, and robots. Typically, although not necessarily, VAXELN applications are real-time applications - those in which the system's response to external events is critical, such as scientific and industrial data processing situations in which computer operation has to be synchronized with machines and special input/output devices.

Price: $6700 - $10,050

VAXset (VAX Software Engineering Tools)

SPD Number: 27.07
Operating System: VMS, MicroVMS
Keywords: Application development
Development tools
Programming tools
Source code control

The VAXset (VAX Software Engineering Tools) is comprised of five component products:

- VAX Language-Sensitive Editor
- VAX Performance and Coverage Analyzer
- VAX DEC/CMS
- VAX DEC/MMS
- VAX DEC/Test Manager

These products, running on VAX/VMS and MicroVMS, provide a set of software engineering tools for the development, testing, and maintenance of application programs. Descriptions of the components products of VAXset are as follows:

The VAX Language-Sensitive Editor - A multi-language, multi-window, screen-printed editor specifically designed for program development and maintenance. The editor is "language-sensitive" in that it provides users with VAX language-specific information.

The VAX Performance and Coverage Analyzer - A tool to help VAX/VMS and MicroVMS users analyze the execution behavior of their application programs.

VAX DEC/CMS (Code Management Software) - A library system that facilitates the development and maintenance of software systems. Software systems are divided into different functional components that are, in turn, organized into sets of one or more files.

VAX DEC/MMS (Module Management Software) - A software tool designed to enhance programmer productivity. It determines components in a described software system have changed, and rebuilds the system in an optimal way.

VAX DEC/Test Manager - Automates regression testing by executing user-supplied tests and automatically comparing the results with the expected test results. VAX DEC/Test Manager gives the software engineer flexibility in organizing tests and in selecting tests for execution, and in verifying and reviewing test results.

Price: $23,080

VNXset Package

SPD Number: 27.08
Operating System: VMS, MicroVMS
Keywords: Application development
Development tools
Programming tools
Source code control
VNX

The VNXset Package is comprised of four component products:

- VAX DEC/Shell
- VAX C
- VAX DEC/CMS
- VAX DEC/MMS

These products, running on VAX/VMS and MicroVMS, provide a user interface and capabilities similar to those of a UNIX™ Version 7 system. The components are described below:

- The VAX DEC/Shell - A command language that provides an interface to the VAX/VMS operating system, similar to the interface on a UNIX V7 system.
- VAX C - An extended implementation of the C programming language originally developed at Bell Laboratories. The VAX C compiler runs under the VAX/VMS and MicroVMS operating systems and generates optimized and position-independent code.
- VAX DEC/CMS (Code Management Software) - A library system that facilitates the development and maintenance of software systems. Software systems are divided into different functional components that are, in turn, organized into sets of one or more files.
- VAX DEC/MMS (Module Management Software) - A software tool designed to enhance programmer productivity. It determines that components in a described software system have changed, and rebuilds the system in an optimal way.

Trademark: UNIX is a trademark of AT&T Bell Laboratories.

Price: $15,190

Artificial Intelligence

DIGITAL's VAX computers have been a popular hardware choice for artificial intelligence (AI) research since their introduction. Now that AI is migrating out of research laboratories and into industry where the cost/benefit ratio is critical, the advantages of a VAX approach are even more significant. Only VAX systems can be used for every aspect of artificial intelligence work from R&D to practical system development and delivery.

The VAX architecture allows AI applications to use a variety of layered languages through the VAX Calling Standard, and provides the basis for the best networking and communications in the industry. That means higher productivity and lower support costs.

The widest selection of artificial intelligence software tools in the industry runs on DIGITAL's VAX systems. A variety of implementations of the AI languages of LISP, OPS5, and Prolog are available for VAX systems. So are AI development environments and applications developed by third parties. The availability of a wide range of tools makes the programming effort that much easier.

Golden Common LISP™

SPD Number: X0.03
Operating System: MS™-DOS
Keywords: Personal computing
Artificial intelligence
Languages
LISP dialect
List processing
Symbolic processing

Golden Common LISP is an artificial intelligence development and programming system that is ideal for universities and schools. The small, fast-response system can help any computer or engineering department.

Golden Common LISP features include: advanced data types such as closure, vectors, and double-precision floating-point numbers; modular programming primitives such as CASE and IF-THEN-ELSE; coroutines to enable multi-tasking; and user-defined input/output streams.

Trademark: Golden Common LISP is a trademark of Gold Hill Computers, Inc.

MS is a trademark of Microsoft Corporation.

Price: $495

INTELLECT™, Version 1.0

SPD Number: X0.24
Operating System: VMS, MicroVMS
Keywords: Artificial intelligence
English
Grammatical rules
Dictionary
Data management
Report generator

INTELLECT, an English query language for VAX Rdb/VMS, combines information retrieval with artificial intelligence techniques. INTELLECT is an ideal end-user English front end to VAX Rdb. Instead of using cumbersome syntax, maneuvering menus and sets of commands, the end user can just phrase the query in everyday English terms. The onus of understanding is not on the computer.

INTELLECT offers something for everyone: the novice, intermediate, and technical end-user. INTELLECT contains a dictionary of basic English words and grammatical rules plus a lexicon of application-specific words defined by the lexicon architect. With this, end users can retrieve data by phrasing queries in English in a variety of ways.

INTELLECT meets the business needs of varied application areas such as Human resources, Sales and Marketing, Medical Systems, and Finance. The end user can view it as an "English engine" to any VAX Rdb database. INTELLECT is a commercially successful Natural Language product. Its other database interfaces have been successful in Banking, Insurance, Manufacturing, and Health Care environments.

INTELLECT also allows the end users to:

- Enhance the lexicon with their own words using the English Definition Facility.
- Save frequently asked queries and invoke them at a later date.
- Use a range of functions such as min, max, count, compare, average.
- Create and customize ad hoc reports.
- Use the on-line HELP facility, which has over 300 HELP files.

Trademark: INTELLECT is a trademark of Artificial Intelligence Corporation.

Price: $6,500 - $28,500

INTERLISP for VAX Computers

SPD Number: X0.01
Operating System: VMS
Keywords: Artificial intelligence
Languages
LISP dialect
Symbolic processing

INTERLISP for VAX Computers is a total programming environment for artificial intelligence applications. INTERLISP combines the flexible yet structured framework of the LISP programming language with extensive program support facilities designed to make developing and maintaining complex applications as easy as possible.

INTERLISP for VAX features:

- Fully interactive user interface
- Built-in dynamic storage management
- Built-in facilities for manipulating lists and symbolic names
- Data manipulation is independent of data structure
- Arrays, vectors, strings
- Built-in capability to transform iterative statements to equivalent INTERLISP forms
- Any mixture of compiled and interpreted code can be run
- Up to 8 fonts for pretty-printing.

INTERLISP for VAX special features:

- Extended LISP user package
- More efficient memory management
- Additional array features including zero-origin and small-integer array options
- Optimizing compiler that reduces the volume of code.

Price: $1500 - $8000

LISP

SPD Number: 25.82
Operating System: MicroVMS, VMS
Keywords: Compilers
Programming tools

Distribution media: 9-track 1600 bpi magnetic tape, RA60, RK07, RL02, RX50.

VAX LISP is an implementation of Common LISP, a dialect of LISP (LIST Processing Language). With the exception of complex numbers and the INSPECT function, VAX LISP is a complete, interactive Common LISP environment. *Common LISP; The Language,* written by Guy Steele and published by Digital Press, Spring 1984, is the standard reference for the language specifications.

Common LISP features a fully interactive user interface, built-in dynamic storage management, built-in facilities for manipulating lists and symbolic names, and more. VAX LISP features integration with the VAX/VMS operating system, including the facility to call non-LISP routines conforming to the VMS calling standard, a fully integrated compiler, and an extensible text editor with multiple-window display capabilities. The editor style provides features appropriate to LISP programming, such as parenthesis balancing, line indention, and selection and evaluation of LISP forms.

Price: $4800 - $8000

OPS5, Version 2.0

SPD Number: 27.04
Operating System: VMS
Keywords: Artificial intelligence
Decision support
Programming tools

Distribution medium: 9-track 1600 bpi magnetic tape.

OPS5 for VAX/VMS is a high-performance DIGITAL-engineered implementation of the OPS5 language as described in the *OPS5 User's Manual* by Charles L. Forgy, Department of Computer Science, Carnegie-Mellon University. OPS5 is a production system language for applications in the expert systems and cognitive psychology areas of artificial intelligence. Application areas include aeronautics/aerospace, petroleum, process control, and scheduling.

A production system consists of if-then statements yet differs from a conventional language with an if-then structure in the flow of control of the program at run time. Typically, one if-then statement, or rule, requires two blocks, or 1 Kbyte, of storage.

Price: $5000

Quintus Prolog for the VAX family

SPD Number: X0.09
Operating System: VMS
Keywords: Artificial intelligence
Logic base programming
Natural language
Prolog

Quintus Prolog for the VAX is designed to make building software for intelligent systems smooth and cost effective. It offers a high performance development environment that provides an exceptional foundation for artificial intelligence and other symbolic processing applications.

Quintus Prolog allows programmers to focus on the application, not on techniques for manipulating data. Quintus Prolog's straightforward logic-based statements and full-function program environment give an extended tool base without extending learning time.

Quintus can be very helpful when you need to develop:

- Rule-based systems, expert systems, or natural language systems with an interface to a database
- Programs that automatically generate other programs–in Prolog or in other programming languages
- General tools that help build Prolog applications
- Programs that link processes occurring in one program to those occurring in another.

Price: $8000 - $12,000

S.1, Version 1.0

SPD Number: X0.23
Operating System: VMS, MicroVMS
Keywords: Engineering
Knowledge base
Judgmental
Procedural
Factual
Expert systems
Artificial intelligence

S.1 is designed to assist knowledge engineers in the development of large expert systems to solve practical problems. It is written in C and operates on all valid VAX and MicroVAX configurations under both VMS and ULTRIX-32. S.1 is a product of Teknowledge, Inc. in Palo Alto, CA.

S.1 derives its power by integrating strategies for representation, inference and control. An S.1 knowledge base is composed of three kinds of knowledge: factual, judgmental and procedural. Each kind of knowledge is encoded separately. Factual knowledge, representing assertions about objects and relationships between objects is encoded in a specialized "frame system." Judgmental knowledge is encoded in "if-then" rules. Procedural knowledge, representing sequences of problem-solving steps, is encoded in "control blocks." The development system is supplied with a reference manual, a user's guide, and a sample knowledge base. The packaged system is accompanied by documentation to be added to the reference manual.

A two-week training course for one person covering the features and use of the software, together with one year of additional product and maintenance support, is included with the Development System. This package is strongly recommended for the first-time buyer. Training and support are provided by Teknowledge, Inc. Lecture topics include: Representing Knowledge, Designing Knowledge Bases, Creating and Reasoning About Multiple Objects, and Representing Relationships.

S.1 provides facilities for knowledge engineers (people who design and implement knowledge systems) and for users (people who consult with knowledge systems to solve a particular problem).

Knowledge system development includes multi-level tracing and breaking, consistency checking, saved cases and transcripts, and editor interface.

User interface includes English translation, explanation facility, automatic recognition of abbreviated answers, and a HELP facility.

Price: Available upon request

Communications

DIGITAL has the largest installed networking base and the greatest range of data communications products available from one vendor. DIGITAL also has the most extensive networking capability available today.

With DIGITAL's style of distributed data processing, computers and terminals can be linked into flexibly configured networks. Computer systems, terminals, and PCs can share resources and exchange information, files, and programs, thereby increasing the efficiency and cost-effectiveness of data processing operations.

DIGITAL's distributed networking is set within an architecture that offers the computing power and range of VAX computers, reliable applications based on the single VMS operating system, and the DECnet family of networking products and high-speed Ethernet transmission capabilities. In addition, DIGITAL can integrate other vendors' systems and networks that adhere to industry and de facto standards.

CMR11/CMV11 Software Driver, Version 3.0

SPD Number: 14.76
Operating System: RSX
Keywords: Device drivers/handlers
Networking

This loadable device driver handles the UNIBUS to Compact Micro Remote (CMR) host controller module interface (CMR11) or the Q-BUS to CMR host controller module (CMV11). The CMR11/CMV11 Driver, in conjunction with a valid host controller module(s) and CMR01 Remote unit(s), is used for distributed industrial-control-network monitor and control applications. Access is provided to the CMR11 Host/Remote functional capabilities that are implemented in microprocessor-based firmware through standard FORTRAN and MACRO-11 QIO calls.

The CMR11/CMV11 Driver is PDP-11, RSX-11M/M-PLUS/S compatible and supports both mapped and unmapped memory configurations, single- or multiple-host controller modules, and either UNIBUS- or Q-BUS-supported CPUs.

The driver provides communication between user application software and the CMR firmware-implemented process I/O network. The driver supports the standard RSX-11M/M-PLUS/S QIO directives ATTACH, DETACH, and CANCEL for CMR-specific functions. The driver also supports up to 16 host controller modules, each of which can support 16 remotes for each communication port with CMR limited distance modems (LDMs) or up to 63 remotes for each communication port with EIA standard RS232-C modems. Each remote unit can handle up to 256 process I/O points.

Price: $600 - $3000

COMM IOP-DUP, Version 1.0

SPD Number: 10.12
Operating System: RSX
Keywords: Device drivers/handlers
Signal processing

The COMM IOP-DUP is an intelligent Direct Memory Access (DMA) controller for synchronous communications lines. The software consists of a KMC11-A microprogram and a microprogram loader. The loader runs as a privileged task under the RSX-11M operating system.

Under the direction of a user-written driver executing in the PDP-11 processor, the KMC11 microprogram can control multiple DUP11 synchronous communication lines connected to the PDP-11 UNIBUS. At system start-up time, the COMM IOP-DUP loader transfers the

microprogram to the KMC11. The driver must then initialize the microprogram and identify the line addresses, line characteristics, and the I/O buffers that the microprogram is to use.

Driver-defined buffer descriptor lists identify the I/O buffers for each communications line, allowing main memory buffers to be chained. A list consists of 3-word entries, with each entry identifying an I/O buffer. Lists can be any arbitrary length, and the driver can assign up to two receive and two transmit buffer descriptor lists to each COMM IOP-DUP-controlled communication line.

The driver can select line characteristics such as full- or half-duplex transmission. Data transmission protocols are transparent to the COMM IOP-DUP. The driver can use the DIGITAL Data Communications Message Protocol (DDCMP) or a "bit stuffing" protocol such as the CCITT X.25 Standard, ISO HDLC, IBM® SDLC, Burroughs BDLC, or DATAPAC SNAP. The COMM IOP-DUP can relieve the PDP-11 central processor of many of the tasks associated with handling synchronous communications lines: handling modem control functions; calculating, checking, and sending CRC characters; controlling receiver synchronization; recognizing slave station addresses for multidrop operation and numbered and unnumbered messages; and computing numbered message lengths. For bit stuffing operation, COMM IOP-DUP can control flag character generation and checking, secondary station selection, frame check sequence generation and detection, and error and abort detection.

The driver is responsible for half-duplex and multidrop line control, as well as for header formatting and message sequencing, acknowledgment, and retransmission.

Trademark: IBM is a registered trademark of International Business Machines Corporation.

Price: Available upon request

COMM IOP-DZ, Version 1.0

SPD Number: 10.11
Operating System: RSX
Keywords: Device drivers/handlers
Signal processing

The COMM IOP-DZ, an intelligent Direct Memory Access (DMA) controller for asynchronous terminal communications lines, performs DMA message assembly on reception and disassembly on transmission. The COMM IOP-DZ relieves the PDP-11 central processor of many tasks associated with handling asynchronous terminal lines. Those functions include character echoing, received-message formatting, character deletion, and buffer chaining.

The software consists of a KMC11-A microprogram and a microprogram loader. The loader runs as a privileged task under the RSX-11M operating system.

Under the direction of a user-written driver executing in the PDP-11 processor, the KMC11 microprogram can control up to 48 terminals connected to the PDP-11 UNIBUS through DZ11 asynchronous line multiplexers. Terminals operate on a multibuffered basis in full-duplex or echoplex mode.

At system start-up time, the COMM IOP-DZ loader transfers the microprogram to the KMC11. The driver must then initialize the microprogram and identify the line addresses, line characteristics, and I/O buffers that the microprogram is to use.

Driver-defined buffer descriptor lists identify the I/O buffers for each communications line, allowing main memory buffers to be chained. A list consists of 3-word entries, with each entry identifying an I/O buffer. Lists can be any arbitrary length, and the driver can assign up to two receive and two transmit buffer descriptor lists to each COMM IOP-DZ-controlled terminal line.

In addition to the buffer descriptor lists, COMM IOP-DZ uses 128-byte functional-mode control tables defined by the driver in main memory space. Those tables enable the driver to control how the COMM IOP-DZ processes any given input character. As many as eight functional-mode control tables can be assigned to a given line, enabling the COMM IOP-DZ to recognize the process-multiple-character sequences. Tables can be shared by multiple lines.

The driver must reserve a block of PDP-11 memory for the exclusive use of the COMM IOP-DZ microprogram as temporary storage. The size of the memory to be reserved must be 16 × (the highest line number assigned) ± 1 word long.

Price: Available upon request

COS-310 2780/3780 RDCP, Version 9.2, Remote Data Communications Package

SPD Number: 06.11
Operating System: VMS
Keywords: Data conversion
Networking

COS-310 2780/3780 Remote Data Communications Package (RDCP) enables a valid DECstation or Datasystem running COS-310 to act as a Remote Job Entry (RJE) terminal. COS-310 2780/3780 users can transmit data and/or job control files to another COS-310 2780/3780 system, to a DIGITAL system running a 2780 or 3780 emulator, or to a properly configured IBM® 360/370 system running appropriate RJE job entry

software. COS-310 2780/3780 operates at line speeds of up to 9600 bits per second over switched or private facilities using Bell™ System series 201, 208, or 209 modems.

COS-310 2780/3780 appears as an IBM 2780 Model 2 (with data routed to a disk file instead of a card punch) or an IBM 3780 data transmission terminal in a point-to-point synchronous data link operating in a standard 2780 or 3780 format. It transmits logical records of 80 or fewer characters and receives logical records of up to 132 characters. COS-310 2780/3780 can also transmit a non-standard 132- or 510-character-length record and a variable-length record having up to 510 characters. Blocks can be up to 400 characters long for 2780 and 512 characters long for 3780. Data is transmitted from disk. Received data can be stored on disk or printed on the line printer.

Features:

- 400-character buffer in 2780 mode
- 512-character buffer in 3780 mode
- Multiple record transmission and reception
- Short record (EM) detection
- Vertical and horizontal print format control
- Automatic retransmission and retry feature
- Conversion of COS-310 file format to EBCDIC for transmission
- Use of the system for business applications when COS-310 2780/3780 is not running
- Maximum line speeds of 9600 bits per second with disk-pack-based systems, 4800 bits per second with floppy-disk-based systems
- Unattended batch operation
- Space compression/expansion for 3780 mode
- Automatic restart capability for interrupted dial-up data links

In addition to providing 2780/3780 emulation, COS-310 2780/3780 can transmit and receive program files stored on disk to and from another COS-310 2780/3780.

Price: Available upon request

CTS-300 RDCP (2780/3780), Version 2.1

SPD Number: 10.61
Operating System: CTS-300
Keywords: Data conversion
Networking
Signal processing

Distribution media: RK05, RK06, RK07, RL01, RL02, RX01.

This Remote Data Communications Package (RDCP) enables a D150 or D300 system running CTS-300 to act as a Remote Job Entry (RJE) terminal. RDCP users can transmit data to another CTS-300 RDCP system, to a DIGITAL system running a 2780/3780 emulator, or to an IBM® 360/370 system. RDCP operates at line speeds up to 9600 bps on D330 and D350 series and 4800 bps on D150 and D320 series. Switched or private circuits using Bell™ System series 201, 208, or 209 modems or equivalent are supported.

CTS-300 RDCP appears as an IBM 2780 Model 2 (with card punched data routed to a disk file) or 3780 data transmission terminal in a point-to-point synchronous data link operating in a standard 2780 or 3780 format. Records of different length may be transmitted. Received data can be up to the maximum buffer size, which is 400 characters for 2780 and 512 for 3780.

Received data can be stored on disk or printed on the line printer.

Trademark: IBM is a registered trademark of International Business Machines Corporation.

Bell is a trademark of Bell Telephone Companies.

Price: Available upon request

DECdataway Intelligent Subsystem, Version 2.1

SPD Number: 15.18
Operating System: RSX
Keywords: Device drivers/handlers
File transfer

DECdataway software allows application programs to execute in a remote subsystem under RSX-11S and to communicate through the DECdataway with tasks in a DECdataway host system (DPM, DPM-PLUS software, or a VAX-11 DY32). Supported DECdataway Intelligent Subsystems include DPM50 DECdataway I/O and DPM23 Programmable DECdataway.

User application programs in a remote subsystem can be written in MACRO, FORTRAN-77, or FORTRAN IV. Interactive program-to-program communications are provided between programs in a remote

subsystem and programs in a DECdataway host. A maximum of 32 logical links can be established between programs in the DECdataway host and programs in each remote subsystem.

Price: Available upon request

DECdx/RSTS, Version 1.0

SPD Number: 13.32
Operating System: RSTS
Keywords: Asynchronous communication
File transfer
Word processing

Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RK06, RK07, RL01, RL02.

DECdx/RSTS is a layered software product that resides on PDP-11 RSTS/E host systems. DECdx enables WPS-8-based systems, both standalone and shared resource, and the host to be linked together for better system utilization, document exchange, and information and data sharing.

Users of DECmates and other DIGITAL WPS-8-based systems can use DECdx to transfer documents between the WPS-8 system and the RSTS/E host mainframe over a serial line interface. The WPS word processing document formats and print control characters are retained. During a DECdx session, the WPS-8 system operates as though it were another terminal on the host system.

Communication between the WPS-8 and RSTS/E systems uses the DIGITAL Standard Document Exchange (DX) protocol and file format to detect and correct errors.

Price: $2350

DECnet – VAX/VMS Network Software (Full Function and End Node)

SPD Number: 25.03
Operating System: MicroVMS, VMS
Keywords: Down-line loading
File management
File transfer
Networking

Distribution media: RX01, RX50, TU58 DECtape II cartridge.

DECnet-VAX allows a suitably configured VAX/VMS or MicroVMS system to participate as a routing or end node in DECnet computer networks. Using DECnet-VAX Version 4.0, DECnet computer networks can contain up to 1023 nodes, given proper network planning. DECnet-VAX interfaces are standard components of VAX/VMS for use on a local, standalone system. The DECnet-VAX end node and full-function products are each packaged separately for MicroVMS. The DECnet-VAX software, when installed on a VAX/VMS system, enables communication between different networked systems that use the same protocols.

DECnet-VAX offers task-to-task communications, file management, down-line system and task loading, network command terminals, and network resource-sharing capabilities, using the DIGITAL Network Architecture (DNA) protocols. DECnet-VAX communicates with adjacent and nonadjacent Phase III and Phase IV nodes (adjacent nodes control opposite ends of a point-to-point communication line). DECnet-VAX is a Phase IV network product and is warranted for use only with Phase III and Phase IV products supplied by DIGITAL.

VAX/VMS programs written in VAX MACRO and native-mode high-level language can use DECnet-VAX capabilities. Programs executing in PDP-11 compatibility mode cannot use DECnet-VAX.

The network functions available to a DECnet-VAX user depend in part on the configuration of the rest of the network. Each DECnet product offers its own functions and its own set of features to the user. Networks consisting entirely of DECnet-VAX Phase IV nodes have all the functions described in the SPD (Software Product Description). Networks that combine DECnet-VAX nodes with other DECnet products may limit the functions available to the DECnet-VAX user because some DECnet-VAX features may not be supported by all DECnet products. Conversely, a user of another DECnet implementation will not necessarily have access to all DECnet-VAX functions.

The DECnet products and functions available to users on mixed networks can be determined by comparing the SPDs for the appropriate products.

Price: $245 - $3250

DECnet Router Server

SPD Number: 30.34
Operating System: RSX, VMS
Keywords: Networking
Operations

Distribution media: 9-track 1600 bpi magnetic tape, RL02.

This product runs on an Ethernet communications server hardware unit to provide DECnet routing functions in a network of one or more host computers. Those hosts may be Phase III or Phase IV routing nodes or end nodes - for example, DECnet-RT Version 2.1 and DECnet/E Version 2.0. The DECnet Router Server connects directly to the Ethernet to provide routing to nodes off the Ethernet connected through the unit's synchronous/asynchronous lines.

Phase IV DECnet networks are hierarchical networks that can be segmented into areas. The DECnet Router Server supports both intra- (Level 1) and interarea (Level 2) routing for transporting messages between nodes. Those nodes can be remote Phase III/IV routing nodes or end nodes in the same area or different area or other DECnet router servers connected to other Ethernets in the same area or different area. End nodes connected directly to an Ethernet must use DECnet router servers or Phase IV host routing nodes on the same Ethernet for message routing off that Ethernet. A routing node is not required on an Ethernet if the end nodes connected to that Ethernet communicate only with each other. However, if the Ethernet directly connects nodes with different area addresses, an area routing node is required to transport messages between those areas. Use of the DECnet Router Server offloads certain communications processing on host nodes that would otherwise serve as routing nodes on the Ethernet.

The DECnet Router Server implements Phase IV DECnet asynchronous and synchronous DDCMP routing and network management. Through the use of Phase IV DECnet protocols, DECnet networks can contain up to 63 areas, each containing up to 1023 nodes, given proper network planning. The DECnet Router Server can be used to connect to Phase III nodes, providing migration of Phase III networks with connectivity to Phase IV Ethernet nodes.

The DECnet Router Server is warranted for use only with supported Phase III and Phase IV DECnet products supplied by DIGITAL.

Price: $2420 - $2660

DECnet Router/X.25 Gateway

SPD Number: 30.41
Operating System: VMS
Keywords: Networking
Telecommunications

Distribution media: 9-track 1600 bpi magnetic tape, RL02.

The DECnet Router/X.25 Gateway runs on an Ethernet communications server hardware unit to provide DECnet routing functions for a network of one or more host computers, through point-to-point links,

such as leased lines or the switched telephone network, or CCITT X.25 Packet-Switching Data Network (PSDN) switched virtual circuits. This network may include Phase III or Phase IV routing nodes or end nodes.

The DECnet Router/X.25 Gateway is warranted for use only with supported Phase III and Phase IV DECnet products supplied by DIGITAL.

Price: $2660

DECnet-11M, Version 4.0

SPD Number: 10.75
Operating System: RSX
Keywords: Asynchronous communication
File transfer
Networking

Distribution media: 9-track 800/1600 bpi magnetic tape, RK06, RK07, RL01, RL02.

DECnet-11M allows a suitably configured RSX-11M system to participate as a routing or nonrouting (end) node in DECnet computer networks. DECnet-11M is a Phase IV network product and is warranted for use only with supported Phase III and Phase IV products supplied by DIGITAL.

DECnet Phase IV networks can contain up to 1023 nodes, given proper network planning. Phase III nodes participating in Phase III/IV networks are limited to the Phase III routing capability of 255 nodes. Phase II nodes are not supported.

DECnet-11M offers task-to-task communications, utilities for network file operations, homogeneous network command terminal support, and network resource-sharing capabilities, using the DIGITAL Network Architecture (DNA) protocols. DECnet-11M communicates with adjacent nodes over synchronous and asynchronous communication lines, Ethernet Local Area Networks (LANs), and parallel interfaces. Communication using X.25 circuits over selected Packet Switched Data Networks (PSDN) is also possible. That requires DECnet-11M to be configured with RSX-11 PSI/M product. Access to DECnet-11M is supported for RSX-11M user programs written in MACRO-11, FORTRAN IV, FORTRAN-77, BASIC-PLUS-2, and COBOL.

Networks consisting entirely of DECnet-11M nodes can have the full functionality described in the SPD (Software Product Description). Networks that mix DECnet-11M nodes with other DECnet products can limit the functions available to the DECnet-11M user because some DECnet-11M features are not supported by all DECnet products. Some supplied optional features require hardware configurations larger than the minimum supported systems.

The DECnet products and functions available to users on mixed networks can be determined by comparing the SPDs for the component products.

Price: $800 - $2950

DECnet-11M-PLUS, Version 2.0

SPD Number: 10.66
Operating System: RSX
Keywords: Asynchronous communication
File transfer
Networking

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02.

DECnet-11M-PLUS allows a suitably configured RSX-11M-PLUS system to participate as a routing or nonrouting (end) node in DECnet computer networks. DECnet-11M-PLUS is a Phase IV network product and is warranted for use only with supported Phase III and Phase IV products supplied by DIGITAL.

DECnet Phase IV networks can contain up to 1023 nodes, given proper network planning. Phase III nodes participating in Phase III/IV networks are limited to the Phase III routing capability of 255 nodes. Phase II nodes are not supported.

DECnet-11M-PLUS offers task-to-task communications, utilities for network file operations, homogeneous network command terminal support, and network resource-sharing capabilities, using the DIGITAL Network Architecture (DNA) protocols. DECnet-11M-PLUS communicates with adjacent nodes over synchronous and asynchronous communication lines, Ethernet Local Areas Networks (LANs), and parallel interfaces. Communication using X.25 circuits over selected Packet Switched Data Networks (PSDN) is also possible. That requires DECnet-11M-PLUS to be configured with RSX-11 PSI/M-PLUS products. Access to DECnet-11M-PLUS is supported for RSX-11M-PLUS user programs written in MACRO-11, FORTRAN IV, FORTRAN-77, COBOL, and BASIC-PLUS-2.

The functions available to an RSX-11M-PLUS user depend, in part, on the configuration of the rest of the network. Each DECnet product offers its own level of functionality and its own set of features to the user. Networks consisting entirely of DECnet-11M-PLUS nodes can have the full functionality described in the SPD (Software Product Description). Networks that mix DECnet-11M-PLUS nodes with other DECnet products can limit the functions available to the DECnet-11M-PLUS user because some DECnet-11M-PLUS features are not supported by all DECnet products. DECnet-11M-PLUS pro-

vides the same primary services on all systems; however, some supplied optional features require hardware configurations larger than the minimum supported systems.

The DECnet products and functions available to users on mixed networks can be determined by comparing the SPDs for the component products.

Price: $540 - $2950

DECnet-11S, Version 4.0

SPD Number: 10.74
Operating System: RSX
Keywords: Asynchronous communication
File transfer
Networking

Distribution media: 9-track 800/1600 bpi magnetic tape, RK06, RK07, RL01, RL02.

DECnet-11S allows a suitably configured RSX-11S system to participate as a routing or nonrouting (end) node in DECnet computer networks. DECnet-11S is a Phase IV network product and is warranted for use only with supported Phase III and Phase IV products supplied by DIGITAL.

DECnet Phase IV networks can contain up to 1023 nodes, given proper network planning. Phase III nodes participating in Phase III/IV networks are limited to the Phase III routing capability of 255 nodes. Phase II nodes are not supported.

DECnet-11S offers task-to-task communications, RSX network command terminal support, and network resource-sharing capabilities, using the DIGITAL Network Architecture (DNA) protocols. DECnet-11S communicates with adjacent nodes over synchronous and asynchronous communication lines, Ethernet Local Area Networks (LANs), and parallel interfaces. Access to DECnet-11S is supported for RSX-11S user programs written in MACRO-11, FORTRAN IV, and FORTRAN-77.

The functions available to an RSX-11S user depend, in part, on the configuration of the rest of the network. Each DECnet product offers its own level of functionality and its own set of features to the user. Networks consisting entirely of DECnet-11S nodes can have the full functionality described in the SPD (Software Product Description). Networks that mix DECnet-11S nodes with other DECnet products can limit the functions available to the DECnet-11S user because some DECnet-11S features are not supported by all DECnet products. DECnet-11S provides the same primary services on all systems; however, some supplied optional features require hardware configurations larger than the minimum supported systems.

The DECnet products and functions available to users on mixed networks can be determined by comparing the SPDs for the component products.

Price: $325 - $2950

DECnet-DOS, Version 1.1, MS™-DOS Network Software for IBM® Personal Computers

SPD Number: 50.15
Operating System: IBM
Keywords: Communications
File transfer
IBM-PC
Networking

DECnet-DOS allows selected IBM personal computer systems to participate as non-routing (end) nodes in DECnet computer networks. This software is one of the DECnet-DOS family of products for personal computer systems running Microsoft Corporation's MS-DOS operating system, and specific variations of that product.

DECnet-DOS offers task-to-task communications, remote file access, utilities for network file operations, network command terminal support, and network resource-sharing capabilities using the DIGITAL Network Architecture (DNA) protocols. Access to full DECnet-DOS functions is supported for DOS user programs written in MACRO-86 Assembler (MASM) and the C language.

Given proper network planning, DECnet Phase IV networks can contain a maximum of 1023 nodes per network area, and up to 63 areas per network. Phase III nodes participating in Phase III/IV networks are limited to the Phase III routing capability of 255 nodes. Phase II nodes are not supported. Phase IV end nodes not directly connected to an Ethernet Local Area Network can connect to only one node (for DECnet-DOS, that node must be Phase IV). In order to communicate with other nodes in the network, including Phase III nodes, that node must be a Phase IV full-function (routing) node. With DECnet-DOS, the user can either connect directly to baseband Ethernet, or to an adjacent routing node using an asynchronous serial interface.

Direct connection to an adjacent node is accomplished over a serial line, using IBM's personal computer Asynchronous Communications Adapter as the physical link. The adjacent node must be Phase IV, full-function (routing), supporting asynchronous DDCMP (DECnet, as opposed to asynchronous terminal) connections, such as a DECnet-11M-PLUS or DECnet-VAX system, or the DECnet Router Server. The Software Product Description of the DECnet product in question must be consulted to determine if asynchronous operation is supported, and to develop a supportable routing node configuration.

The functions available to the DECnet-DOS system user depend largely on the configuration of the rest of the network. Each DECnet product offers its own level of capability and its own set of features to the user. The DOS operating system is limited to a single user, and access to a DECnet-DOS node from a remote network terminal is not possible. Additionally, because DOS is a single-tasking operating system, access and management from remote command nodes is limited, and networks that consist solely of DECnet-DOS nodes cannot be built. A File Access Listener server application is provided by DECnet-DOS, and similar applications may be built by the user. However such applications must run to the exclusion of others.

The DECnet products and functions available to users on mixed networks can be determined by comparison of the SPDs for the component products.

Price: $500

DECnet/E, Version 2.0

SPD Number: 10.73
Operating System: RSTS
Keywords: File transfer
Networking

This Phase III network product allows a suitably configured RSTS/E system to participate as a routing or nonrouting (end) node in DECnet computer networks. DECnet/E is warranted for use only with supported Phase II, Phase III, and Phase IV DECnet products supplied by DIGITAL.

DECnet/E offers task-to-task communications, homogeneous network command terminals, network file transfer, multipoint line support, and adaptive routing, using the DIGITAL Network Architecture (DNA) protocols. DECnet/E communicates with adjacent and nonadjacent Phase III and Phase IV nodes and with adjacent Phase II nodes. Phase II nodes will not be supported in future releases. Adjacent nodes control opposite ends of a point-to-point communication line or are in a master/slave relationship on a multipoint line. DECnet/E functions are available to RSTS/E user programs written in BASIC-PLUS, BASIC-PLUS-2, FORTRAN IV, FORTRAN-77, PDP-11 COBOL, COBOL-81, or MACRO-11.

DECnet/E is a Phase III product; direct connection to an Ethernet-based Local Area Network (LAN) is not supported. DECnet/E nodes may access, or be accessed by, Phase IV LAN nodes through a Router Server or through Phase IV routing nodes on the LAN.

Networks consisting entirely of DECnet/E Phase III nodes have all the functions described in the SPD (Software Product Description). Networks that combine DECnet/E nodes with other DECnet products can limit the functions available to the DECnet/E user, since some DECnet/E features may not be supported by all DECnet products. Conversely, a user of another DECnet implementation will not necessarily have access to all DECnet/E functions.

The DECnet products and functions available to users on mixed networks can be determined by comparing the SPDs for the appropriate products.

Price: Available upon request

DECnet-IAS, Version 3.0

SPD Number: 10.71
Operating System: IAS
Keywords: Asynchronous communication
File transfer
Networking

Distribution media: 9-track 800/1600 bpi magnetic tape, RL02.

This Phase III network product allows a suitably configured IAS Version 3.2 system to participate as a routing or nonrouting (end) node in a DECnet computer network. DECnet-IAS is warranted for use only with Phase II and Phase III DECnet products supplied by DIGITAL.

DECnet-IAS offers task-to-task communications, utilities for network file operations, homogeneous network command terminal support, and network resource-sharing capabilities, using DIGITAL Network Architecture (DNA) protocols. DECnet-IAS communicates with adjacent nodes (adjacent nodes control opposite ends of a point-to-point communication line) over synchronous and asynchronous communication lines and parallel interfaces. Access to DECnet-IAS is supported for IAS user programs written in MACRO-11, FORTRAN IV, FORTRAN-77, BASIC-PLUS-2, and COBOL.

The network functions available to an IAS user depend, in part, on the configuration of the rest of the network. Each DECnet product offers its own level of functions and its own set of features to the user. Networks consisting entirely of DECnet-IAS nodes can have the full functionality described in the SPD (Software Product Description). Networks that combine DECnet-IAS nodes with other DECnet products can limit the functions available to the DECnet-IAS user because some DECnet-IAS

features are not supported by all DECnet products. Conversely, a user of another DECnet implementation will not necessarily have access to all DECnet-IAS functions.

The DECnet products and functions available to users on mixed networks can be determined by comparing the SPDs for the component products.

Price: Available upon request

DECnet-Rainbow, MS™-DOS Network Software for the Rainbow 100, Version 1.0

SPD Number: 50.14
Operating System: MS-DOS
Keywords: Personal computing
Communications
File transfer
Networking

DECnet-Rainbow allows Rainbow 100 personal computer systems to participate as non-routing (end) nodes in DECnet computer networks. This software is one of the DECnet-DOS family of products for personal computer systems running Microsoft Corporation's MS-DOS operating system and specific variants of that product.

DECnet-Rainbow offers task-to-task communications, remote file access, utilities for network file operations, network command terminal support, and network resource-sharing capabilities using the DIGITAL Network Architecture (DNA) protocols. Access to full DECnet-Rainbow functions is supported for DOS user programs written in MACRO-86 Assembler (MASM) and the C language.

Given proper network planning, DECnet Phase IV networks can contain a maximum of 1023 nodes per network area up to 63 areas per network. Phase III nodes participating in Phase III/IV networks are limited to the Phase III routing capability of 255 nodes. Phase II nodes are not supported. Phase IV end nodes not directly connected to an Ethernet Local Area Network can connect to only one node (for DECnet-Rainbow, that node must be Phase IV). In order to communicate with other nodes in the network, including Phase III nodes, that node must be a Phase IV full-function (routing) node. DECnet-Rainbow does not support direct connection to Ethernet.

Trademark: MS is a trademark of Microsoft Corporation.

Price: $295

DECnet-RT, Version 2.1

SPD Number: 10.72
Operating System: RT-11
Keywords: Asynchronous communication
File transfer
Networking

Distribution media: 9-track 800 bpi magnetic tape, RK05, RL01, RL02, RX02, RX50.

DECnet-RT is a Phase III network product that allows a suitably configured RT-11 Foreground/Background (F) system to participate as a nonrouting (end) node in DECnet computer networks. DECnet-RT offers task-to-task communications, utilities for network file operations, and network resource-sharing capabilities, using DIGITAL Network Architecture (DNA) protocols. DECnet-RT communicates with adjacent nodes over synchronous and asynchronous communication lines. Access to DECnet-RT is supported for RT-11FB user programs written in MACRO-11 and FORTRAN IV.

DECnet-RT is warranted for use only with Phase III and Phase IV DECnet products supplied by DIGITAL. The functions available to an RT-11FB user depend, in part, on the configuration of the rest of the network. Each DECnet product offers its own level of functionality and its own set of features to the user. Networks consisting entirely of DECnet-RT nodes - for example, a 2-node network - can have the full functionality described in the SPD (Software Product Description). Networks that mix DECnet-RT nodes with other DECnet products will enhance the functions available to the DECnet-RT user. As a nonrouting node, DECnet-RT does not support all the features of a routing node.

The DECnet products and functions available to users on mixed networks can be determined by comparing the SPDs for the component products.

Price: $650

DECnet/SNA Gateway Products

SPD Number: 30.15
Operating System: MicroVMS, RSX, VMS
Keywords: File transfer
Networking
Telecommunications

Distribution media: 9-track 1600 bpi magnetic tape, RK07, RL02, RX01, RX02, RX50, TU58 DECtape II cartridge.

The DECnet/SNA Gateway Products allow users to share information among MicroVMS, VAX/VMS, and RSX-11M/11M-PLUS systems in a DECnet environment and IBM® systems in an SNA (System Network Architecture) environment. DIGITAL system users can simultaneously access IBM application programs or other system resources, act as a 3270 display station, transfer data between VAX/VMS or RSX file subsystems and IBM batch subsystems acting as an RJE workstation, and implement distributed application programs that run between DIGITAL and IBM systems.

The DECnet/SNA Gateway family includes two variants of the Gateway system and four access routines for each supported operating system. Both versions require software to be loaded before operation. This software is collectively referred to as "access routines." Current access routines include:

- DECnet SNA VMS DISOSS Document Exchange - SPD 26.72
- DECnet SNA VMS Distributed Host Command Facility - SPD 26.71
- DECnet SNA VMS Application Programming Interface - SPD 26.86
- DECnet SNA VMS Remote Job Entry - SPD 26.85
- DECnet SNA VMS 3270 Data Stream Programming Interface - SPD 26.87
- DECnet SNA VMS 3270 Terminal Emulation - SPD 26.84
- DECnet SNA VMS Appc/LU6.2 Programming Interface - SPD 26.88

For more information on any of the access routines refer to the SPD numbers given above.

Trademark: IBM is a registered trademark of International Business Machines Corporation.

Price: Available upon request

DECprom (PROM Programming Utility)

SPD Number: 26.49
Operating System: VMS
Keywords: Device drivers/handlers
File transfer
Programming tools
Utilities

Distribution media: 9-track 1600 bpi magnetic tape, RX01, TU58 DECtape II cartridge.

This software utility controls a programmable read-only memory (PROM) or erasable programmable read-only memory (EPROM) programming device. The utility transfers program images from a file on a

host development system to a PROM mounted in the socket adapter of the programming device. The utility supports any PROM programmer that conforms to the protocols used by VAX DECprom. The programmer hardware connects to a VAX/VMS host development system over an RS232C serial line, which is distinct from the console interface on the host system.

VAX DECprom supports five types of binary program image files: MicroPower/Pascal MIM files; LDA files; a restricted format of the RSX-11 Task builder TSK file, which is a nonoverlaid memory image file without a task header or checkpoint area; unformatted memory image files similar to nonoverlaid RT-11 SAV files; and VAX/VMS EXE system image files without headers. To create a PROM- or EPROM-based application, the user writes the application in a VAX/VMS supported language, which can then be linked into one of five supported file types. When a program image file is created, VAX DECprom can be used to transfer the contents, or a subset of the contents, to one or more PROMs or EPROMs.

VAX DECprom also supports MOS TECHNOLOGY and Intel™ INTELLEC 8/MDS formatted files as ASCII program image files. Those files are created by other programs, such as cross-assemblers, and can be used by VAX DECprom to program PROMs and EPROMs.

Trademark: Intel is a trademark of Intel Corporation.

Price: $750

DECserver 100 Terminal Server

SPD Number: 30.43
Operating System: VMS
Keywords: Asynchronous communication
Networking

Distribution media: 9-track 1600 bpi magnetic tape, RX01, TU58 DECtape II cartridge.

This network terminal switch for Ethernet Local Area Networks provides a convenient method for logically connecting up to eight DIGITAL asynchronous terminals to one or more service nodes (hosts) on an Ethernet. The connected terminal uses applications programs and utilities as though the terminal were connected to that host through a DZ11 or DMF32 device. Thus, the DECserver 100 may connect terminals to service nodes in place of traditional interfaces, except for a console terminal.

The DECserver 100 implements the Local Area Transport (LAT) protocol for communication with service nodes that implement that protocol on the same Ethernet. The new interface has been optimized for high terminal I/O performance over an Ethernet while reducing host CPU

cycles required to handle interrupts. Under most I/O loading conditions, therefore, the DECserver 100 may improve performance over direct terminal connections.

Terminal access using the DECserver 100 does not require DECnet running in the same service node; LAT uses the Ethernet addressing mechanism to transport terminal messages. However, one Phase IV DECnet load host must be running on the same Ethernet to allow DECserver 100 software to be down-line loaded.

Price: $150

DECserver 100, Version 1.2 (For RSX-11M-PLUS and Micro/RSX)

SPD Number: 09.27
Operating System: RSX-11M-PLUS, Micro/RSX
Keywords: Networking
File transfer
Asynchronous communication

The DECserver 100 is a network terminal switch for Ethernet Local Area Networks. The DECserver 100 provides a convenient method to logically connect up to eight DIGITAL asynchronous terminals to one or more service nodes (hosts) on an Ethernet. Once the terminal is connected, the user can use application programs and utilities the same as through a terminal directly connected to a host via a DZ11, DMF32 or DH11 device, with a few exceptions. It may be possible to use the DECserver 100 to connect all terminals to service nodes in place of traditional interfaces, except for host console terminals.

The DECserver 100 implements the Local Area Transport (LAT) protocol for communication with service nodes that implement this protocol on the same Ethernet. This new interface has been optimized for high terminal I/O performance over an Ethernet, while reducing host CPU cycles required to handle interrupts. Under most I/O loading conditions, a significant performance gain may be realized by using the DECserver 100 versus direct terminal connections via DZ11s.

Login load balancing, multiple terminal sessions, and automatic login failover are some of the features that can lead to greater user productivity.

Price: $150 - $200

DX/11M, Version 3.1

SPD Number: 10.96
Operating System: RSX
Keywords: Asynchronous communication
Diagnostics
Networking
Printing
Word processing

DX/11M makes asynchronous communication possible between an RSX-11M host and a current WPS-8 word processing system. Communication between the RSX-11M system and the WPS-8 system uses the DX error-correcting protocol. The WPS-8 system appears to the host application programs to be a normal terminal.

DX/11M effectively enables distributed standalone WPS-8 systems and the host RSX-11M real-time multiprogramming system to be linked for better system utilization and data sharing. The DX/11M package includes utility programs that convert RSX-11M files stored in word processing format to RSX-11M files stored in ASCII format, and vice versa.

DX/11M enables the WPS-8 system user to:

- Store word processing format files on an RSX-11M system and later retrieve them. The ability to use the RSX-11M disk structure enables the WPS-8 system user to access a large number of documents that would otherwise fill several document diskettes.
- Use the high-speed PDP-11 line printer connected to the RSX-11M system to print rough drafts and other documents not requiring letter-quality printing. That increases system throughput and the availability of the WPS-8 letter-quality printer for printing final drafts. In addition, the RSX-11M system user can output text files converted from the RSX-11M file system on the WPS-8 letter-quality printer.
- Use the WPS-8 editor to create RSX-11M source language and data files off line from the RSX-11M system and then transmit the files to the RSX-11M system for processing.

Price: Available upon request

DX/RSTS, Version 3.1

SPD Number: 10.95
Operating System: RSTS
Keywords: Asynchronous communication
Diagnostics
Printing
Word processing

DX/RSTS, a software package executing on the PDP-11 RSTS/E timesharing system, makes asynchronous communication possible between a RSTS/E host and a current WPS-8 word processing system. Communication between the RSTS/E system and the WPS-8 system uses the DX error-correcting message protocol. The WPS-8 system appears to the host application programs to be a normal terminal.

DX/RSTS effectively enables distributed standalone WPS-8 systems and the host RSTS/E timesharing system to be linked for better system utilization and data sharing. The DX/RSTS package includes utility programs that convert RSTS/E files stored in word processing format to RSTS/E files stored in ASCII format and vice versa.

DX/RSTS enables the WPS-8 system user to:

- Store word processing format files on a RSTS/E system and later retrieve them. The RSTS/E disk structures enable the WPS-8 system user to access a large number of documents that would otherwise fill several document diskettes and those large documents filling an entire diskette.
- Use the high-speed PDP-11 line printer connected to the RSTS/E system to print rough drafts and other documents not requiring letter-quality printing. That increases system throughput and the availability of the WPS-8 letter-quality printer for printing final drafts. Conversely, the RSTS/E system user can output text files converted from the RSTS/E file system on the WPS-8 letter-quality printer.
- Create RSTS/E source language and data files off-line from the RSTS/E system, using the WPS-8 editor, and then transmit the files to the RSTS/E system for processing.

Price: Available upon request

DX/TOPS-20, Version 1, WPS-8 to Host Software Utility

SPD Number: 23.04
Operating System: TOPS-20
Keywords: Asynchronous communication
Diagnostics
Printing
Word processing

DX/TOPS-20 is a FORTRAN software package that executes on a DECSYSTEM-20. It enables a WPS-8 word processing system running WPS-8, WPS-8/78, or WPS-8/MTS software to communicate with the DX/TOPS-20 host over an asynchronous terminal interface. The WPS-8 system appears to the host to be a normal terminal. Communication between the WPS-8 system and the TOPS-20 system uses the DX error-correcting message protocol. DX/TOPS-20 thus effectively enables distributed standalone WPS-8 systems and the host TOPS-20 system to be linked together for better system utilization and data sharing. The DX/TOPS-20 package includes utility programs that convert TOPS-20 files stored in word processing format to TOPS-20 files stored in ASCII format and vice versa.

DX/TOPS-20 enables the WPS-8 system user to:

- Store word processing format files on a TOPS-20 system and later retrieve them.
- Use the high-speed DECSYSTEM-20 line printer connected to the TOPS-20 system to print rough drafts and other documents that do not require letter-quality printing.
- Create TOPS-20 source language and data files off-line from the TOPS-20 system using the WPS-8 editor, and then transmit the files to the TOPS-20 system for processing.

Price: $1,450

DX/VMS

SPD Number: 25.25
Operating System: VMS
Keywords: Asynchronous communication
Data conversion
Diagnostics
Word processing

DX/VMS, a VAX-11 FORTRAN software package, enables a WPS-8 word processing system running WPS-8, WPS-8/78, or WPS-8/MTS software to communicate with the VAX/VMS host over an asynchronous terminal interface. The WPS-8 system appears to the host applica-

tion programs as a normal terminal. Communication between the WPS-8 system and the VAX/VMS system uses the DX error-correcting message protocol.

DX/VMS effectively links distributed standalone WPS-8 systems and the host VAX/VMS system for better system use and data sharing. The DX/VMS package utility programs convert VAX/VMS files stored in word processing format to VAX/VMS files stored in ASCII format and vice versa.

DX/VMS enables the WPS-8 system user to store and retrieve word processing format files on a VAX/VMS system. The VAX/VMS disk structure enables the WPS-8 system user to access documents filling several document floppies or large documents filling an entire floppy.

The WPS-8 user can also use the high-speed line printer connected to the VAX/VMS system to print rough drafts and other documents that do not require letter-quality printing. That increases system throughput and the availability of the WPS-8 letter-quality printer for printing final drafts. Conversely, the VAX/VMS system user can output text files converted from the VAX/VMS file system on the WPS-8 letter-quality printer.

Finally, the user can create VAX/VMS source language and data files off line from the VAX/VMS system, using the WPS-8 editor, and then transmit the files to the VAX/VMS system for processing.

Price: $250

DY32 DECdataway Local Area Network Software

SPD Number: 25.57
Operating System: VMS
Keywords: Data conversion
File transfer
Networking
Telecommunications

This software package provides local area network communications for VAX/VMS host systems. It allows user application programs in a VAX/VMS host to communicate with multidropped devices connected to the VAX/VMS host through the DECdataway.

VAX DY32 hosts control the DECdataway through the DECdataway controller driver, which provides a standard operating system interface to the DECdataway controllers. Through the interface, the network software and other processes in the host can determine the status of each remote DECdataway device. The interface allows simultaneous requests to all addresses on the DECdataway, verifies the validity of the request, and passes it to the DECdataway controller. The DECdataway

controller driver treats each DECdataway address as a separate physical device unit and logs DECdataway errors, which are put in a file on the system disk and reported by a VAX/VMS utility.

The DECdataway Manager, the DECdataway house-keeping program, loads the DECdataway driver, runs confidence tests on the controller, loads and starts the controller's microcode, and notifies the Automatic Reboot Facility when a remote DECdataway device first comes on line and needs service. The DECdataway Manager runs during DY32 system start-up and whenever the DECdataway driver notifies it that conditions on the DECdataway require its attention.

Price: Available upon request

Ethernet Terminal Server

SPD Number: 30.35
Operating System: VMS
Keywords: Networking

Distribution media: 9-track 1600 bpi magnetic tape, RX01, TU58 DECtape II cartridge.

This efficient network terminal switch for Ethernet local area networks provides a convenient method to logically connect up to 32 DIGITAL asynchronous terminals to one or more service nodes (hosts) on an Ethernet. Once the terminal is connected, the user can use local applications programs and utilities as though the terminal were directly connected to that host through a DZ11 or DMF32 device. As such, the Ethernet host(s) does not need any direct terminal connections other than for a console.

The Ethernet Terminal Server implements the Local Area Transport (LAT) protocol for communication with service nodes that implement the host side of this protocol on the same Ethernet. That interface handles character I/O efficiently and thereby provides high terminal I/O performance over an Ethernet while reducing host CPU cycles required to handle interrupts. Hence, the Terminal Server has an important advantage over direct terminal connections such as DZ11 or DMF32.

Price: $550

External Document Exchange, with IBM DISOSS®, Version 1.0

SPD Number: 26.92
Operating System: VMS
Keywords: Communications
Data conversion
Networking

External Document Exchange (EDE) with IBM® DISOSS® is a VAX/VMS layered product that allows the DIGITAL office automation user access to text information contained in an IBM DISOSS/370 (Distributed Office Support System/370) document database. Users of either ALL-IN-1 office menu or DECdx/VMS software can search for, retrieve, file, or delete documents on the IBM DISOSS/370 host database. A user can retrieve a document created by another user in an IBM SNA office network environment, edit it locally on the DIGITAL system, distribute it through a DIGITAL office network, print it out, or refile it in the DISOSS/370 document database.

Operation of EDE with IBM DISOSS is initiated through an easy-to-use menu interface that can be added to the ALL-IN-1 office menu or invoked from the DCL system prompt when used with DECdx. The functions supported correspond to the document library services found in IBM's DISOSS/370 office applications. The user interface for operating the functions of search, file, retrieve, and delete were produced to be compatible with DIGITAL standard user interface requirements for office products. A context specific on-line HELP capability is included with the product.

Trademark: IBM and DISOSS are registered trademarks of International Business Machines Corporation.

Price: Available upon request

IAS/2780 Protocol Emulator, Version 3.0

SPD Number: 10.90
Operating System: IAS
Keywords: Networking
File transfer

Distribution media: 9-track 800 bpi magnetic tape, RK05, RK06.

This emulator provides batch-oriented communication between a PDP-11-based IAS system and an IBM® 360/370 or 303x host processor. The emulator supports the exchange of data between DIGITAL and IBM systems by emulating the communications protocol of an IBM 2780 remote batch terminal on a suitably configured IAS Version 3.1

system. The IAS system appears as an IBM 2780 remote batch terminal on a point-to-point switched or nonswitched data link to an IBM system running the appropriate Remote Job Entry protocols.

The IAS user can build data files, using the IAS Editor, other system facilities, or IAS application programs. The user can then activate the IAS/2780 program and transmit files to the remote facility, using simple interactive commands. Data received from the remote facility can be delivered directly to the line printer or can be written to a disk storage device in standard IAS file format. Output from jobs submitted to the remote system can be received by a specified device, where they are stored under a user-defined file specification or are given a default file name and version number.

Any disk device accessible through IAS Files Control System (FCS) can be used as a source or sink of data to be transmitted or received. Files can be printed directly onto any line printer supported by the IAS host operating system except the LS11 and LV11 printers. Files destined for the LS11 or LV11 can be stored temporarily on disk and printed in off-line mode.

The communications discipline implemented by the IAS/2780 Protocol Emulator is the subset of IBM's Binary Synchronous Communications (BSC) protocol, which uses EBCDIC transmission code and point-to-point contention. BSC control characters are automatically added to the data before transmission and stripped upon reception. Line protocol and error recovery sequences are handled transparently by the product.

Both fixed-length (80-character card image) and variable-length (up to 132-character) records can be transferred as either EBCDIC (automatically translated to and from ASCII) or binary data. A subset of vertical format control escape sequences is supported - specifically, single, double, and triple space and form feed. Horizontal-format control records can be received and processed.

The following 2780 remote batch terminal features are supported: 2780 multiple-record transmission option, transparent mode, variable horizontal forms control, print and punch component selection on receive, and spooling of received files. The emulator supports the operation of a single, full- or half-duplex synchronous point-to-point line at transmission speeds up to 4800 bits a second. Support for automatic answer to incoming calls is also supported.

Price: Available upon request

IEX-VMS-Driver

SPD Number: 26.30
Operating System: VMS
Keywords: Device drivers/handlers

Memory required: 6K. Distribution media: RX01, TU58 DECtape II cartridge.

The IEX-VMS-Driver allows programs written in MACRO-32, VAX FORTRAN, or VAX BASIC to communicate through the IEU11-A with devices containing an IEC625-1 or IEEE Standard # 488 interface. That communication is implemented through a choice of direct QIO calls or a set of subroutines callable from high-level languages.

The IEU11-A interface is a bit-parallel/byte-serial device that can perform transfers in either program interrupt or DMA (direct memory access) mode. The former is used for transferring commands and addresses; the latter is used for transferring data. DMA significantly reduces processor loading during the transfer of long data buffers.

The IEU11-A interface contains two independent IEC625-1/IEEE 488 bus controllers, also known as General Purpose Interface Buses (GPIB). Those two controllers may be connected to the same or to different IEC/IEEE buses. Up to 15 devices may be attached to one IEC/IEEE bus.

Release notes are provided for IEC11 users who wish to migrate their application programs to an IEV11.

Price: $300 - $975

Instrument Bus Subroutines, Version 2.1

SPD Number: 12.14
Operating System: RT-11
Keywords: Networking
File transfer
Source code control

Distribution media: RK05, RL01, RL02, RX01.

Instrument Bus Subroutines (IBS) consists of a library of FORTRAN-callable subroutines to support the IB11 and IBV11-A interface from an IEEE-488-1978 General-Purpose Instrument Bus, as well as a special device handler called by routines in the library. IBS allows the user to control the IEEE bus through commands that control data transfer through the IB11 or IBV11-A. The user may specify a FORTRAN

completion routine that will be entered asynchronously when any device on the IEEE bus asserts the Service Request Bus Line. This software supports the IB11 or IBV11 as controller-in-charge of all bus activity.

Price: $49 - $100

KCT32

SPD Number: 26.04
Operating System: VMS
Keywords: Asynchronous communication
Debugging
Device drivers/handlers
Telecommunications

Distribution media: 9-track 1600 bpi magnetic tape, RX01, TU58 DECtape II cartridge.

This software and firmware package provides VAX/VMS support of the KCT32 hardware communication option. VAX-11 KCT32 software, with the KCT32 firmware and KCT32 hardware, allows the user to implement custom communication applications.

Users can program the KCT32 communication lines for bit/byte synchronous or asynchronous transmission and reception, using the standard DIGITAL PDP-11 Instruction Set implemented with the DCT11 chip. This software, used with the KCT32 hardware and user-written communication application, allows the VAX/VMS host processor to perform high-speed multiline communication.

Prerequisite software includes the VAX/VMS operating system and VAX-11 RSX (if VAX/VMS is at the minimum of Version 4.0).

Price: $500

KMS11 RSX X.25 LAPB Link-Level Software, Version 1.0

SPD Number: 13.42
Operating System: RSX
Keywords: Device drivers/handlers
Networking

Distribution media: 9-track 800/1600 bpi magnetic tape, RX01, RX02.

This software/firmware package consists of basic X.25 LAPB link-level firmware for the KMS11-BD or KMS1P-M; a firmware loader, to load the firmware into the KMS11 hardware; an RSX-11 (RSX-11M, RSX-11M-PLUS, or RSX-11S) device driver for a KMS11-BD or a KMS1P-M communication controller; and a demonstration program.

The driver, in conjunction with the X.25 LAPB link-level firmware, allows the RSX-11 user to perform high-speed synchronous X.25 link-level communication in a point-to-point environment. The driver provides the interface for transferring command, control, and data information to/from the RSX-11 user task, KMS11-BD or KMS1P-M X.25 LAPB link-level firmware, and the remote end of the communications line. The KMS11 driver is full duplex and maintains internal queues, enabling the supplied firmware to control eight receive and eight transmit buffers for each line concurrently.

If the user's application runs on a system with 22-bit mapping enabled, a separate partition should contain all buffers. That can be either a common area or a partition in which the task(s) will be installed.

The KMS11-BD and KMS1P-M X.25 LAPB firmware was designed in accordance with the CCITT X.25 LAPB recommendation of November 1980.

Price: $1200 - $3500

KMS11-BD/BE HDLC/BSC Framing Software

SPD Number: 26.55
Operating System: VMS
Keywords: Device drivers/handlers

Distribution media: 9-track 1600 bpi magnetic tape, RX01, TU58 DECtape II cartridge.

The VAX KMS11-BD/BE HDLC/BISYNC (BSC) Framing Firmware consists of a VAX/VMS software driver and firmware for the KMS11-BD/BE. The VAX/VMS software driver and the KMS11-BD/BE software allow VAX/VMS users to build and implement custom or standard communication protocol without having to program the KMS11-BD/BE.

The KMS11-BD/BE firmware provides the HDLC or BISYNC (BSC) framing of the data, as well as the DMA between the KMS11-BD/BE and VAX host. That capability reduces the host of processor overhead associated with character interrupt devices. The VAX host is no longer interrupted on each character that is transmitted or received and does not have the software overhead associated with determining what to do with each character as it is received or transmitted. Rather, an interrupt is generated on a message transmitted or received basis, and processing then takes place on the entire message.

The driver is the interface that allows the user to transmit or receive command, control, or message data among VAX/VMS users, the KMS11-BD/BE firmware, and the remote end of the communication line. The VAX/VMS software driver for the KMS11-BD/BE provides the interface that allows the VAX/VMS user to send or receive messages

for various protocols in the VAX/VMS host. Those messages are then sent or received by means of DMA from the KMS11-BD/BE HDLC/BISYNC Framing Software.

The purpose of the KMS11-BD/BE firmware is to provide the basic HDLC or BISYNC line framing of the messages received or to be transmitted from the VAX host using a DA device. A host application program, not supplied with this software, must provide the protocol line control. That program may be written in a higher-level language supported on VMS systems.

Price: $3000

KMS11-BD/BE X.25 Link-Level Software

SPD Number: 25.80
Operating System: VMS
Keywords: Device drivers/handlers
Networking
Pre- and postprocessors
Telecommunications

Distribution media: 9-track 1600 bpi magnetic tape, RX01, TU58 DECtape II cartridge.

This package consists of X.25 Level 2 firmware and a VAX/VMS device driver for the KMS11-BD/BE X.25 Link-Level Software. The driver, in conjunction with the X.25 Level 2 firmware and KMS11-BD/BE hardware, allows a VAX/VMS processor to perform high-speed multiline synchronous communication in a point-to-point environment. The driver allows command, control, and data information to/from VAX/VMS users, KMS11-BD/BE firmware, and the remote end of a communication line. The driver is full-duplex and maintains internal queues.

Price: $6000 - $6600

KMV1A MicroVMS Driver, Version 1.0

SPD Number: 28.23
Operating System: MicroVMS
Keywords: Data transfer
Communications
Programming tools

The KMV1A MicroVMS Driver provides a mechanism for communication between a MicroVMS host and the KMV1A Programmable Communications Controller. The driver controls this communication by providing an interface between MicroVMS application programs and

microcode being executed in the KMV1A Controller's microprocessor. The communication includes data transfer and transfer of command, control, and status information to and from the KMV1A Controller. The driver also provides the mechanism to load microcode from the MicroVMS host into the KMV1A Controller, and to initialize the microcode.

The KMV1A MicroVMS Driver software product consists of three major components: the KMV1A driver, a demonstration program, and an installation verification program.

Price: Available upon request

KMV1A MicroVMS X.25 Link-Level Software, Version 1.0

SPD Number: 28.25
Operating System: MicroVMS
Keywords: Communications
Programming tools
Data transfer

The KMV1A MicroVMS X.25 Link-Level Software product, used in conjunction with the KMV1A Programmable Communications controller and the KMV1A MicroVMS Driver, provides an X.25-based communications capability on a MicroVMS host. The X.25 link-level software includes microcode with in downline loaded into the memory of the KMV1A Controller. The microcode is executed by the KMV1A Controller's microprocessor to control and process data transmission between the host and the KMV1A Controller's communication line. The microcode can be configured at the user's option to either execute the data link level of the X.25 communications protocol or to provide an HDLC framing capability only. When executed by the controller's microprocessor, the microcode provides three major functions:

- Communication with the host
- An option to execute the data link level of the X.25 protocol or to perform HDLC framing
- Communication with the KMV1A Controller's communication line

The link-level option provided by the microcode included in the KMV1A MicroVMS X.25 Link-Level Software product performs processing of the data link level of the X.25 protocol in conformance with the 1980 CITT X.25 Recommendation pertaining to Link Access Procedure (LAPB). The functions provided through the link-level processing include data framing, frame header generation, error checking, and retransmission of erroneous frames. The KMV1A MicroVMS X.25 Link-Level Software also includes a sample host program, tracing utility, and installation verification program.

Price: Available upon request

KMV1A RSX and Micro/RSX HDLC Framing Software, Version 1.0

SPD Number: 14.22
Operating System: RSX
Keywords: Device drivers/handlers
Networking

Formerly KMV11-A Framing Software.

The KMV1A HDLC Framing Software is a package consisting of basic HDLC/SDLC framing firmware, a firmware loader, and an RSX or Micro/RSX device driver for the KMV1A programmable communication controller. The driver, in conjunction with the HDLC/SDLC framing firmware, loader, and the KMV1A hardware, allows the RSX or Micro/RSX operating system user to perform medium speed synchronous communication in a point-to-point or multi-point environment.

The driver provides the interface for transfer of command, control, and data information between the RSX or Micro/RSX operating system and the KMV1A basic HDLC/SDLC framing firmware.

The full-duplex KMV1A driver maintains internal queues, enabling the supplied firmware to control, receive, and transmit buffers at the same time. This allows efficient use of the device during transmission and reception of data.

KMV1A HDLC Framing Software was designed according to the specification for HDLC/SDLC frame structure as defined in the ISO 3309 standard.

Price: Available upon request

KMV1A X.25 Link-Level Software, Version 1.0

SPD Number: 13.43
Operating System: RSX
Keywords: Device drivers/handlers
Networking

Formerly the KMV11 RSX X.25 LAPB Link-Level Software.

The KMV1A X.25 Link-Level Software package allows the user of the RSX-11M, RSX-11M-PLUS, or RSX-11S operating systems to perform high-speed synchronous communications in a point-to-point environment.

This software/firmware package consists of X.25 LAPB link-level firmware for the KMV1A, a firmware loader, a device driver for the KMV1A Q-BUS communication controller, an installation test program, a trace dump module, and a trace interpreter.

Features:

- Support for RSX-11M, RSX-11M-PLUS, RSX-11S and Micro/RSX operating systems
- Full-duplex operation
- Loads the X.25 LAPB Link-Level Firmware into the KMV RAM at driver load time or after a power failure
- Does line initialization and link set-up upon user application software request
- Full-duplex, message-oriented QIO interface for data transmission and reception
- Disconnects link and de-initializes line upon user software request or upon detection of non-recoverable transmission errors
- Maintains error counters and transmission and reception statistics that are available to the user application software

Price: Available upon request

KXT11-CA Peripheral Processor Tool Kit/RSX, Version 2.0

SPD Number: 13.25
Operating System: RSX
Keywords: Debugging
Development tools
Device drivers/handlers
Programming tools

Distribution media: 9-track 1600 bpi magnetic tape, RL02, RX50.

The KXT11-CA Peripheral Processor Tool Kit supports the use of KXT11-CA Peripheral Processors as slave processors in LSI-11 systems that run RSX-11M-PLUS or RSX-11M in the arbiter CPU. The application on the KXT11-CA(s) may be either MicroPower/Pascal-RSX-based or standalone MACRO-11. The Tool Kit facilitates loading and debugging KXT11-CA applications from RSX. The software also provides a driver for communication over the LSI-11 bus between MicroPower application software in the KXT11-CA and the RSX-11M or RSX-11M-PLUS application.

NOTE

Neither RSX-11M-PLUS nor RSX-11M is supported on the KXT11-CA.

The KXT11-CA is designed to off-load traditional single-processor LSI-11 systems. Typical uses of the KXT11-CA Peripheral Processor are applications using serial or parallel I/O in real-time environments.

Development of the KXT11-CA Peripheral Processor on-board application can be done with the MicroPower/Pascal-RSX product, which provides a complete software environment for the development of applications in either Pascal or MACRO-11 assembler language.

Price: $400 - $540

KXT11-CA Peripheral Processor Tool Kit/RT-11, Version 1.0

SPD Number: 12.70
Operating System: RT-11
Keywords: Debugging
Development tools
Device drivers/handlers
Programming tools

Distribution media: RL02, RX02, RX50.

The KXT11-CA Peripheral Processor Tool Kit supports the use of KXT11-CA Peripheral Processors as slave processors in LSI-11 systems that run RT-11 in the arbiter CPU. The application on the KXT11-CA(s) may be either MicroPower/Pascal-RT-based or standalone MACRO-11. The Tool Kit facilitates loading and debugging KXT11-CA applications from RT-11. The software also provides a driver for communication over the LSI-11 bus between MicroPower/Pascal-RT application software in the KXT11-CA and the RT-11 application.

NOTE
RT-11 is not supported on the KXT11-CA.

The KXT11-CA is designed to off-load traditional single-processor LSI-11 systems. Typical uses of the KXT11-CA Peripheral Processor are applications using serial or parallel I/O in real-time environments.

Development of the KXT11-CA Peripheral Processor on-board application can be done with the MicroPower/Pascal-RT product, which provides a complete software environment for the development of applications in either Pascal or MACRO-11 assembler language. MicroPower/Pascal-RT provides program-building utilities and symbolic debugging aids for the developer, supplies a modular multi-tasking run-time executive, drivers for KXT11-CA on-board I/O devices, and a driver for communication with the RT-11 application.

Price: $400 - $540

LAT-11

SPD Number: 15.32
Operating System: VMS
Keywords: Asynchronous communication
Networking

Distribution media: RX02, TU58 DECtape II cartridge.

LAT-11 enables a properly configured PDP-11 system to be used as a terminal server on the Ethernet local area network. The PDP-11 configuration, referred to as a LAT-11 server, communicates over the Ethernet with host systems (nodes) that support the LAT (Local Area Transport) host protocol. Users at terminals connected to the LAT-11 server establish virtual circuits (sessions) with nodes; therefore, terminal input/output to/from a node appears essentially identical to that of a terminal connected to the node through a direct EIA asynchronous line. However, unlike direct terminal connections, the LAT-11 server enables users to easily access all nodes on an Ethernet that run LAT.

Price: $3300

Linkware™

SPD Number: X0.28
Operating System: VMS
Keywords: File transfer
Library

Linkware is an information exchange communication package enabling IBM® PCs™ (or compatibles) and DIGITAL Rainbow Personal Computers to transfer information with a VAX host.

Features:

- Interface to DIGITAL hosts, as well as other host systems
- Error-free binary and ASCII file transfers
- File transformation capabilities (for example, FIXED to WKS)
- VT100 and 3101 emulation capabilities
- Automatic log-on facilities
- Multiuser access to a shared, secured file repository
- Common end-user interface micro and host file management functions
- Command-line application programmer interface to all Linkware functions
- Incremental backup capabilities for local workstations
- Workstation and host maintained audit trails for accounting/planning

Linkware provides direct access to a central file area that can reside on a VAX host, as well as other hosts including IBM and UNIX™, and is maintained by the system administrator. On-line terminal users access the central library via Terminal Connection, the Linkware Information Server. Personal computer users can access the same central library via the Linkware Information: PC Connection. The Linkware Administrator places new and updated files into the central library, enabling the user to get up-to-date information directly by using commands similar to VMS DCL commands. Once the user has accessed the central library, files can be transferred to or from the local system. Linkware allows the personal computer user to perform the following functions on files that reside in the central library:

- Change the default directory
- Display the list of files in the current directory
- Delete a file(s)
- Display the description of a file
- Transfer a file from the central library to your user library
- Display HELP information describing available functions
- Lock a file so that other users cannot read or write to it
- Rename a file
- Transfer a file from user library to the central library (if the user is authorized)
- Transform a file from one format to another (fixed format, DIF™, Lotus 1-2-3™, print (PRN) format, Lotus 1-2-3 with MACROS (PRM) format, MULTIPLAN™ Symbolic Link (SYL) format
- Unlock a locked file

Price: Available upon request

Micro/RSX 2780/3780 Emulator, Version 1.0

SPD Number: 18.32
Operating System: RSX
Keywords: Data conversion
Networking

The Micro/RSX 2780/3780 Emulator is a layered software product for a suitably configured MicroPDP-11 system that provides communications to IBM® systems with capabilities similar to IBM 2780 and 3780 remote batch terminals. The product runs under the Micro/RSX operating system.

Micro/RSX 2780/3780 operates using a single, point-to-point communications line. This line can be half- or full-duplex, and supports transmission speeds between 2400 and 4800 bits per second.

The communications discipline implemented by Micro/RSX 2780/3780 is a subset of IBM's Binary Synchronous Communications (BSC) protocol that uses EBCDIC transmission code.

Features:

- Any block addressable storage device supported by Micro/RSX can be used as a source of transmission or for the receiving of files.
- Both fixed length (80 character card image) and variable length files can be transmitted as EBCDIC (automatically translated from ASCII) or binary data (no translation.)
- BSC control characters are automatically added to the data before transmission and stripped on reception.
- Other supported 2780/3780 remote batch terminal features include:
  - Transparent mode
  - Space compression/expansion in 3780 mode
  - Variable vertical and horizontal forms control
  - Print and punch component selection on receive
  - Maximum transmit and receive block size of 400 characters in 2780 mode, 512 characters in 3780 mode.

Trademark: IBM is a registered trademark of International Business Machines Corporation.

Price: Available upon request

MUX200/RSX-IAS Multiterminal Emulator, Version 2.1

SPD Number: 10.77
Operating System: IAS, RSX
Keywords: File transfer
Networking

Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RK06, RK07, RL01, RL02.

This PDP-11-based software package provides communication with a CDC 6000, CYBER series, or other host computer systems capable of using 200 UT Mode 4A communications protocol. The software operates under an RSX-11M, RSX-11M-PLUS, or IAS operating system through supported terminals. The user can communicate at command level with a host system. Using RSX-IAS-supported devices, jobs for batch processing can be sent to and results received from the host.

MUX200/RSX-IAS communicates with the host by using the Mode 4A communications protocol, as defined in CDC publication 82128000. The software package can be configured to support either ASCII or external BCD versions of the communications protocol.

MUX200/RSX-IAS provides for one synchronous communication circuit to a host computer system. The product supports a single switched or dedicated leased line and a 2- or 4-wire common carrier facility at transmission rates up to 4800 bps.

The package enables users to communicate simultaneously with a host system over a single line. The PDP-11 system, while using a single physical drop, appears to the host as a number of multidrops and terminals on the circuit. The maximum number of simultaneous users supported by the MUX200/RSX-IAS system is 16; however, that may be limited to a lower figure by host hardware or software constraints.

A version of this product is available for the VAX computer.

Price: Available upon request

MUX200/VAX

SPD Number: 25.02
Operating System: VMS
Keywords: Data conversion
File management
File transfer
Networking

Distribution media: RX01, TU58 DECtape II cartridge.

This VAX-based package provides communication with a CDC 6000, CYBER series, or other host computer systems capable of using 200 UT Mode 4A communications protocol. The product supports a single switched or dedicated leased line 2- or 4-wire common carrier facility at speeds up to 9600 bps. Any VAX interactive terminal can be used to control remote job entry or to communicate at command level with the host system. Input files can be sent from and output files received onto any VAX-supported mass storage, unit record, or terminal device.

MUX200/VAX enables several users to communicate simultaneously with a host system over a single line. The VAX/VMS system, while using a single physical drop, appears to the host as a number of multidrops and terminals on the circuit. The MUX200/VAX system supports up to 16 simultaneous users. However, that may be limited to a lower figure by host hardware or software.

Price: $5800

NTR

SPD Number: 25.68
Operating System: VMS
Keywords: Data conversion
File management
File transfer
Networking

Distribution media: RX01, TU58 DECtape II cartridge.

VAX NTR allows a VAX/VMS system to communicate with a UNIVAC 1100 series or other host computer systems capable of using UNIVAC NTR protocol. The software operates under the VAX/VMS operating system to permit batch input/output. Start-up, shut-down, and host-queue interrogation by the emulator can be controlled from any one terminal - the control terminal - connected to the VAX/VMS operating system. VAX NTR communicates with the host over a switched or nonswitched 2- or 4-wire line at speeds up to 9600 baud.

Price: $3600 - $6100

PCL

SPD Number: 26.23
Operating System: VMS
Keywords: Device drivers/handlers
File transfer
Networking
Telecommunications

Distribution media: RX01, TU58 DECtape II cartridge.

This optional VAX/VMS software product supports interprocessor communications through the PCL11 hardware option. The VAX PCL driver provides a message-oriented data communications capability between user software located in up to 16 processors linked into a local area network by the PCL11 multidropped parallel bus. A user-oriented message of variable length can be directed to any single receiving node during each transmission transaction. Both VAX-11 and PDP-11 processors can be mixed on the same PCL11 local network. The VAX PCL driver is compatible with the PCL-11M driver, Version 2.0 and above, for the RSX-11M operating system.

The VAX PCL driver also supports interprocessor communications through the DECnet-VAX network software package. The PCL11 hardware and VAX PCL driver will support all the features of DECnet-VAX except down-line loading. Mixed networks of VAX-11 and RSX-11M DECnet nodes may be implemented, provided that the RSX-11M DECnet is not earlier than Version 3.1. VAX PCL is provided as source code only.

Price: $1710 - $4280

PCL-11M, Version 2.0

SPD Number: 14.43
Operating System: RSX
Keywords: Device drivers/handlers
Networking

Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RK06, RL01, RX01.

The PCL-11M I/O driver software is designed to give the RSX-11M Version 3.2 and RSX-11S Version 2.2 user access to PCL11-B parallel communications link hardware functionality. The PCL-11M software driver provides a message-oriented data communications capability with user software located in up to 16 processors linked into a common local network through the PCL11-B time division, multiplexed (TDM) parallel bus. A user-originated message of variable length can be directed to any other single receiving node during each transmission transaction.

The TDM bus permits up to 16 concurrent transmissions when 16 PCL11-B nodes are connected to the bus. PDP-11 and VAX-11 CPU nodes can be mixed on the same TDM bus.

The PCL11-B is supported on RSX-11M and RSX-11S by two independent but complementary drivers. One driver (LRDRV) supports the PCL11-B's receiver subsection, and the other driver (LTDRV) supports the transmitter and master subsections. The driver software is provided as source code only.

The PCL-11M features QIO interface accessible through MACRO and higher-level languages, message receipt accept/reject facilities under user software control, special event flag facilities available to notify the user of unsolicited events that require attention, compatibility with similar drivers supported by VAX/VMS Version 2.1 and on VAX-11 processors linked by the PCL11-B, software assignable bus mastership or secondary mastership for the local PCL 11-B transmitter, and a special 16-bit channel-opening protocol facility available for user programs.

Price: $640 - $1600

poly-COM™

SPD Number: A3.23
Operating System: CP/M®, MS™-DOS
Keywords: Personal computing
Asynchronous communication
File transfer
Networking
Personal computing

Distribution medium: RX50.

Previously known under the name poly-XFR™ CP/M Communications, the poly-COM package for the Rainbow 100 features binary/ASCII file transfers between DIGITAL's Rainbow 100 CP/M-86/80 local system or MS-DOS local system and a host system. The name poly-COM has been changed to reflect the new CP/M-86/80 Version 2.0 operating system upgrade and the MS-DOS operating system addition to this product. The function of this product is the same. The host systems must run the poly-XFR CP/M communications package in order to communicate with poly-COM running on the Rainbow 100.

The package has time-out and error-detection features that ensure the integrity of the transferred data. The software runs up to 9600 bps in a local environment and uses full-duplex modems for remote data transfer.

The package enables the user to transfer, store and retrieve file, use host peripherals, and act as terminal to the host. The user can access either system to do program development, transfer data between systems, or toggle the local printer on or off.

The two main components of poly-COM are software that runs on the host and software that runs on the local system. The poly-COM package is ideal for environments that use distributed development and/or personal computing systems and that need to share data, programs, or peripherals among those systems.

DIGITAL distributes this software product under license from Polygon Associates, Inc.

Trademark: poly-COM and poly-XFR are trademarks of Polygon Associates, Inc.

MS is a trademark of Microsoft Corporation.

CP/M is a registered trademark of Digital Research, Inc.

Price: $200

poly-XFR™ Communications

SPD Number: A0.50
Operating System: RSX, VMS
Keywords: Data conversion
Diagnostics
File management
File transfer

Distribution media: 9-track 1600 bpi magnetic tape, RL02, RX01, TU58 DECtape II cartridge, RX50, TK50.

This package, developed by Polygon Associates, Inc., St. Louis, MO, features binary/ASCII file transfers between DIGITAL's VT180 CP/M local system or a DECmate CP/M-80 local system and a host system. Host systems include CP/M-86/80 or MS™-DOS running poly-COM, DECmate CP/M-80, RSX-11M, RSX-11M-PLUS, and VAX/VMS systems.

Time-out and error-detection features ensure the integrity of the transferred data. The software runs up to 9600 bps in a local environment and uses full-duplex modems for remote data transfer.

The poly-XFR CP/M Communications package can transfer, store, and retrieve files; use host peripherals; and act as a terminal to the host. With either system, the user can develop programs, transfer data between systems, or toggle the local printer on or off.

The CP/M Communications package includes software that runs on the host and on the local system, respectively. The local software is composed of a file-transfer program and a terminal emulator. The transfer program sends and receives files from the host.

The package serves environments that use distributed development and/or personal computing systems and that need to share data, programs, or peripherals.

DIGITAL distributes this software under license from Polygon Associates, Inc.

Trademark: poly-XFR is a trademark of Polygon Associates, Inc.

CP/M is a registered trademark of Digital Research, Inc.

MS is a trademark of Microsoft Corporation.

Price: $600 - $850

PRO 2780/3780 Communications Application

SPD Number: 40.14
Operating System: P/OS
Keywords: Communications
File transfer
IBM terminal emulation
Menus
Networking
Personal computing

PRO 2780/3780 is an application for the Professional 300 series of personal computers that provides communications to systems with capabilities similar to IBM® 2780 and 3780 remote batch terminals. The product runs under the P/OS hard disk operating system.

PRO 2780/3780 operates using a single, point-to-point communication line. This line can be half- or full-duplex, and transmission speeds of up to 9600 bits per second can be achieved on an otherwise idle system.

The user interacts with the product by means of a hierarchy of menus and forms. The product also supplies the user with help information that provides a brief description of the product and its menus.

The communications discipline implemented by PRO 2780/3780 is a subset of IBM's Binary Synchronous Communications (BSC) protocol that uses EBCDIC transmission code.

Trademark: IBM is a registered trademark of International Business Machines Corporation.

Price: $595

PRO/Communications, Version 3.0

SPD Number: 40.06
Operating System: P/OS
Keywords: File transfer
Asynchronous communication
Networking
Personal computing

PRO/Communications is the primary communications package for the Professional. It performs a wide range of asynchronous communications functions including multiple terminal emulations, file conversion services, file transfers over asynchronous service communication links or an Ethernet local area network link, and support for voice/data communications. PRO/communications also provides PRO LAT Ethernet terminal support.

Price: $195

PRO/DECnet, Version 2.0

SPD Number: 40.09
Operating System: P/OS
Keywords: Communications
Data conversion
Electronic mail
File transfer
Networking
Query facilities
Telecommunications
Personal computing

PRO/DECnet enables a Professional 300 series system to participate as a non-routing (end) node in DECnet computer networks. The Professional node can communicate with other DECnet nodes using either the communications port (COMM1) for asynchronous or synchronous DDCMP wide area network communications, or the NET1 port for Ethernet local area network communications, but not both at the same time. The optional PRO/Tool Kit contains libraries that allow developers to write applications that communicate in a DECnet network.

PRO/DECnet is a DECnet Phase IV network product and is warranted for use only with supported Phase IV products supplied by DIGITAL. The Professional system with PRO/DECnet can perform remote file access, remote file transfer, network management, network fault isolation, and network virtual terminal using the DIGITAL Network Architecture (DNA) protocols.

DECnet Phase IV networks can contain up to 63 network areas, with a maximum of 1023 nodes per network area, given proper network planning. Phase III nodes participating in Phase III/IV networks are limited to the Phase III routing capability of 255 nodes. Phase II nodes are not supported. Phase IV end nodes not directly connected to an Ethernet local area network must connect to a Phase IV full-function (routing) node, and can only communicate with Phase III nodes through such a router.

The functions available to the PRO/DECnet user depend largely on the configuration of the rest of the network. Each DECnet product offers its own level of capability and its own set of features to the user. The DECnet products and functions available to users on mixed networks can be determined by comparing the software product descriptions (SPDs) for the component products.

Price: Available on request

Professional Host Communications

SPD Number: 30.29
Operating System: RSX, VMS
Keywords: File transfer
Networking
Telecommunications

Distribution media: PDP: 9-track 800/1600 bpi magnetic tape, RK07, RL02. VAX: RX01, TU58 DECtape II cartridge.

This software for transferring files between a Professional 300 and an RSX-11M/11M-PLUS, or VAX/VMS host system is initiated by a Professional running PRO/Communications in terminal-emulation mode. After the Professional Host Communications facility is started, the Professional switches from terminal-emulation to file-transfer mode. The files can then be transferred between the Professional and the host system.

Price: Available upon request

PROM/RT-11, Version 2.0

SPD Number: 12.21
Operating System: MicroPower/Pascal, RT-11
Keywords: Device drivers/handlers
Networking
File transfer
Programming tools
Utilities

Distribution media: RL01, RL02, RX01.

This RT-11 software utility is designed to control and operate the Data I/O System-171 universal PROM programming hardware device. PROM/RT-11 supports only Data I/O 171 PROM programmers with firmware that has been modified in accordance with DIGITAL's specifications. PROM/RT-11 and the modified Data I/O 171 PROM programmers are available only from DIGITAL as components of the PB11 PROM programming system. The programmer hardware connects to a host development system over an RS232C serial line. That connection must be distinct from the console interface on the host system.

To create a PROM or EPROM-based application, the user writes application programs in FORTRAN, MACRO-11, or MicroPower/Pascal, using program sections to properly segment read-only and read-write segments of the application. When coding and testing of the application in the host development environment are complete, a final build is performed to produce:

- An RT-11 .SAV or .LDA file or a MicroPower/Pascal .MIM file containing the ROMmable binary image to be blasted into PROM or EPROM chips
- An RT-11 LINK map of the .SAV or .LDA file contents or a MIB map of the .MIM file contents, indicating the low and high memory limits for the ROM area of the application program.

At this point, the PROM/RT-11 software is invoked to blast the user's program into the desired PROM chips.

Price: Available upon request

PSI (Packetnet System Interface) and PSI Access

SPD Number: 25.40
Operating System: MicroVMS, VMS
Keywords: Networking
Telecommunications

Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TU58 DECtape II cartridge.

The VAX PSI products allow suitably configured VMS systems to connect to and/or access Packet Switching Data Networks (PSDNs) conforming to CCITT recommendation X.25 (June 1980). VAX PSI and a subset, VAX PSI Access, permit process-to-process and terminal communications between a VAX and remote Data Terminal Equipment (DTE) in a PSDN supporting the X.25 interface protocol.

Both VAX PSI and VAX PSI Access support access for VMS user programs written in VAX MACRO and native-mode high-level languages, such as VAX FORTRAN. VAX PSI and PSI Access are components of the Packnet Systems Interface (PSI) software. The interfaces implemented in both products are fully compatible with interfaces of other VMS products, making PSI and PSI Access mutually exclusive; thus, they cannot operate concurrently on the same system.

Price: Available upon request

Rainbow Connection

SPD Number: 50.17
Operating System: MS™-DOS
Keywords: Personal computing
Communications
Terminal emulation
PC

Rainbow Connection software provides Rainbow computer (PC100) owners with an attractive price/performance path for migrating to DIGITAL multiuser systems, such as MicroPDP-11 and MicroVAX II systems running A-to-Z. It allows Rainbow computers to serve as VT220 terminals and to exchange files between standalone Rainbow computers and host DIGITAL computer systems.

Rainbow Connection software permits DIGITAL Rainbow computers, with or without hard disks, to emulate VT200 series terminals, perform ASCII (text) file transfer operations between the Rainbow and a host A-to-Z or Micro/RSX system with the Rainbow Connection host file transfer application installed, and perform binary file transfer operations between the Rainbow and a DIGITAL computer system running VMS, RSX-11M-PLUS, Micro/RSX or RSTS/E, plus the poly-XFR™ product appropriate to one of these operating systems.

Rainbow Connection software is menu-driven, using menus similar to those found with A-to-Z and its layered products. Main menu selections provide for:

- Accessing and running selected Rainbow application software
- Communicating with the host computer
- Performing File Services or other functions
- Entering MS-DOS on the Rainbow

- A limited-user MS-DOS shell that uses a textual menu system
- Communications script processing
- Send/receive text files between Rainbow computers and MicroPDP-11 systems running A-to-Z or Micro/RSX
- VT200 compatible (level 1) terminal emulation

Trademark: poly-XFR is a trademark of Polygon Associates, Inc.

MS is a trademark of Microsoft Corporation.

Price: $200

Remote Bridge Management Software, Version 1.0

SPD Number: 27.12
Operating System: VMS, MicroVMS
Keywords: Networking
LANBridge
Communications

Remote Bridge Management Software (RBMS) allows users at a VAX host to control and monitor any LANBridge in an "Extended Network". LANBridge is the primary building block of the Extended LAN (Local Area Network) architecture. LANBridge is a store and forward address filtering device.

The Remote Bridge Management Software resides on a VAX host. Corresponding management firmware resides in the LANBridge. The bridge management protocol is used to communicate between the VAX host and the target LANBridge. RBMS provides additional functionality to support the actual control and observation of the target LANBridge. The general characteristics of RBMS include displaying bridge and data-link counters, status, and characteristics; displaying bridge forwarding database; modifying bridge parameters (operational state, forwarding database, and spanning tree characteristics); invoking bridge self-test; providing for the association of ASCII names with specific bridge physical addresses and ease of use in management commands; simultaneous management access by multiple users; and on-line HELP facility.

RBMS is comprised of two major modules: Bridge Control Program (BCP, the User Interface) and the Bridge Management Layer (BML). The BCP module allows for multiple user access. The BML module contains the code that queues the management requests to the bridge.

Price: Available upon request

Remote System Manager (RSM)

SPD Number: 27.32
Operating System: VAX/VMS, MicroVMS
Keywords: RSM
System management
Local area network

Price: $1,500 - $7,500

RSTS/E High-Performance 2780/3780 Emulator, Version 1.1

SPD Number: 10.49
Operating System: RSTS
Keywords: Data conversion
File transfer
Networking

Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RK06, RK07, RL01, RL02.

This emulator runs as a user job on a suitably configured RSTS/E operating system while emulating the communications protocol of an IBM® 2780/3780 device. The emulator uses a KMC-11 microprocessor to handle modem and line control, as well as BSC protocol. By using a microprocessor to perform those functions, the CPU load required to do protocol emulation is reduced.

The emulator appears as an IBM 2780 or 3780 data transmission terminal, in EBCDIC mode, on a point-to-point switched or nonswitched synchronous data link operating with standard 2780/3780 protocol. Received data blocks can be up to the maximum buffer size: 400 characters for 2780 and 512 characters for 3780.

The emulator can transmit and receive data and/or job control files with an IBM System/370 (including 303x processor systems) running Power/VS, HASP, ASP, JES1, JES2, or JES3. The emulator operates at transmission speeds up to 9600 bits a second. Switched, leased, or private circuits using Bell™ System 201, 208, 209, or 212 modems or equivalents are supported.

Trademark: IBM is a registered trademark of International Business Machines Corporation.

Bell is a trademark of Bell Telephone Companies.

Price: $4400

RSTS/E-2780, Version 3.0

SPD Number: 10.50
Operating System: RSTS
Keywords: Data conversion
Networking

Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RK07, RL01, RL02, RX01.

While running as a user job on a suitably configured RSTS/E system, the RSTS/E-2780 software emulates the communications protocol of an IBM® 2780 device. RSTS/E-2780 transmits files stored on any medium supported by RSTS/E and stores files on any output medium supported by RSTS/E except DECtape. Magnetic tape operation can cause time-out errors, unless the tape is positioned at the start of the file when transmission or reception is about to begin. Files can be printed directly on any line printer supported by the host operating system.

RSTS/E supports a spooling feature that allows users running with the RSTS/E-2780 software to queue one or more files for subsequent transmission. The processing requirements of the 2780 protocol can perceptibly degrade RSTS/E response time during transmission or reception.

A version of this product is available for the VAX computer.

Trademark: IBM is a registered trademark of International Business Machines Corporation.

Price: Available upon request

RSX DLX-11, Version 1.0

SPD Number: 10.06
Operating System: RSX
Keywords: File transfer
Networking

Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RK06, RK07, RL01, RL02.

The system provides an error-free communications path between MACRO-11 tasks on an RSX-11M or RSX-11S operating system and a Phase III DECnet-11M or DECnet-11M-PLUS host node. User-written MACRO-11 tasks are required on both ends of the link. The DLX process must be assigned to the line on the Phase III RSX-DECnet host. RSX DLX-11 may be configured in a point-to-point topology or as a tributary on a multipoint line. A special loopback mirror task is supplied to verify connectivity to the DECnet-11M or DECnet-11M-PLUS host, using the host's network management capabilities.

RSX DLX-11 provides the following user task functions: open a line (assign the line to a task), initialize a line (start the DDCMP protocol), receive a message on the line, transmit a message on the line, hang up on the line, and close a line (deassign the line from a task).

Price: $250

RSX-11 2780/3780 Emulator, Version 4.1

SPD Number: 10.01
Operating System: RSX
Keywords: Data conversion
File transfer
Networking

Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RK06, RK07, RL01, RL02.

This software emulates the communications protocol of an IBM® 2780 or 3780 device while running as a user task on a suitably configured RSX-11M or RSX-11M-PLUS disk-based system. (This product is not designed to run on RSX-11S systems.)

The RSX-11 2780/3780 Emulator appears as an IBM 2780 or 3780 data transmission terminal on a point-to-point switched or nonswitched synchronous data link operating with standard 2780/3780 protocol. This product can transmit and receive data and/or job control files with an IBM System/370 (including 303x processor systems) running Power, HASP, RES, JES2, or JES3. The product will transmit files from or store received files on any file-structured device accessible through the RSX-11M or RSX-11M-PLUS File Control Services (FCS) except DECtape or TU58.

Trademark: IBM is a registered trademark of International Business Machines Corporation.

Price: $3800 - $9500

RSX-11 PSI/M (Packetnet System Interface), Version 2.0

SPD Number: 10.42
Operating System: RSX
Keywords: File transfer
Networking

Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RK06, RK07, RL01, RL02.

This system allows a suitably configured RSX-11M system to connect to Public Packet Switching Networks (PPSNs) conforming to the CCITT recommendation X.25 (June 1980). Access to RSX-11 PSI/M is supported for RSX-11M user programs written in MACRO-11, FORTRAN IV, and FORTRAN-77. RSX-11 PSI/M can coexist with or operate as a layered product under DECnet-11M to allow use of DECnet facilities over X.25, as well as private leased lines or switched telephone networks.

The system features task-to-task and remote terminal communications, virtual circuits, line discipline, user program interface, interactive terminal interface, network management, and communications.

Price: $3000

RSX-11 PSI/M-PLUS (Packetnet System Interface), Version 2.0

SPD Number: 10.43
Operating System: RSX
Keywords: File transfer
Networking

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02.

This system allows a suitably configured RSX-11M-PLUS system to connect to Public Packet Switching Networks (PPSNs) conforming to the CCITT recommendation X.25 (June 1980). Access to RSX-11 PSI/M-PLUS is supported for RSX-11M-PLUS user programs written in MACRO-11, FORTRAN IV, and PDP-11 FORTRAN-77/RSX. RSX-11 PSI/M-PLUS can coexist with or operate as a layered product under DECnet-11M-PLUS to allow use of DECnet facilities over X.25, as well as private leased lines or switched telephone networks.

The system features task-to-task and remote terminal communications, virtual circuits, line discipline, user program interface, interactive terminal interface, network management, and communications.

Price: $3000

RSX-11/3271 Protocol Emulator, Version 3.0

SPD Number: 10.88
Operating System: RSX
Keywords: Data conversion
File transfer
Networking

Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RK06, RK07, RL01, RL02.

This protocol emulator (PE) enables RSX-11M and RSX-11M-PLUS VT100 terminals and application programs to interact with IBM system application programs and system services. The Terminal Emulator utility allows the VT100 user on an RSX-11 system to access an IBM system. That feature is useful for users who are implementing distributed processing with PDP-11 systems. Users who are moving applications from centralized mainframes to PDP-11 distributed processors will find that capability an efficient migration tool during the transition phase; users who occasionally access applications that remain on mainframes can access those applications through their local RSX-11 systems.

Price: Available upon request

RSX-11M/IAS RJE/HASP, Version 1.1

SPD Number: 10.51
Operating System: IAS, RSX
Keywords: Data conversion
Networking
Simulation

Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RK06, RK07, RL01, RL02.

This package, operating as a set of tasks under an RSX-11M or IAS operating system, performs the standard functions of an IBM® HASP Remote Job Entry Workstation. RSX-11M/IAS RJE/HASP provides multileaved (pseudosimultaneous, bidirectional) communication of up to seven input and seven output data streams. The number of input and output streams accommodated is fixed at assembly time. The operator can assign operating system-supported devices to data streams by file or on a temporarily dedicated basis.

RSX-11M/IAS RJE/HASP provides the standard HASP protocol features of data compression of repeated sequential characters, including blanks; full EBCDIC transparency; multileaving; and printer vertical forms control skip to channel 1 (top of form) only.

Operator control is provided through the MCR command dispatch feature. The RSX-11/IAS terminal that starts RSX-11M/IAS RJE/HASP provides its control function. This terminal can be the RSX-11/IAS operator's console or any other RSX-11/IAS terminal (logical or physical).

One of the tasks directly controls the communications line. To responsively perform bisynchronous I/O functions, the task is privileged, noncheckpointable, and nonshuffleable. Concurrent use of the communications line by other RSX-11/IAS tasks is precluded.

Any mass-storage or unit record device supported by the operating system can be used as a source or destination of data for a HASP data stream. RSX-11M/IAS RJE/HASP controls file-structured devices through the use of the standard file control system. Non-file-structured devices, such as card readers, line printers, or terminals, are attached during use, and input/output requests are issued.

Trademark: IBM is a registered trademark of International Business Machines Corporation.

Price: $7900 - $9900

RSX-11M/M-PLUS RJE/HASP, Version 1.3

SPD Number: 10.48
Operating System: RSX
Keywords: Networking
Simulation

Distribution media: 9-track 800/1600 bpi magnetic tape, RK06, RK07, RL01, RL02.

This package performs the standard functions of an IBM® HASP Remote Job Entry Workstation. The package operates as a set of tasks under the RSX-11M and RSX-11M-PLUS operating systems and provides multileaved (pseudosimultaneous, bidirectional) communication of up to seven input and seven output data streams. The number of input and output streams accommodated by RSX-11M/M-PLUS RJE/HASP is fixed at assembly time. The operator can assign operating system-supported devices to data streams for each file or on a temporarily dedicated basis.

RSX-11M/M-PLUS RJE/HASP provides standard HASP protocol features of data compression of repeated sequential characters, including blanks; full EBCDIC transparency; multileaving; and support for printer vertical forms control skip to channel 1 (top of form) only.

Trademark: IBM is a registered trademark of International Business Machines Corporation.

Price: $3450 - $9900

RSX-11M/SNA Protocol Emulator, Version 1.1

SPD Number: 14.04
Operating System: RSX
Keywords: Data conversion
File transfer
Networking

Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RK06, RK07, RL01, RL02.

This protocol emulator (PE) allows a suitably configured RSX-11M operating system to communicate with an IBM® Systems Network Architecture (SNA) network. The PE emulates communications functions of an IBM 3790 programmable cluster controller and must be defined as such in the IBM SNA network. RSX-11M/SNA PE does not provide any of the SNA programmable cluster controller functions other than communication in the IBM SNA network.

RSX-11M/SNA PE extends to an RSX-11M application program the ability to communicate by way of the SNA network with an IBM application on a task-to-task basis. The RSX-11M application must be written in MACRO-11 or use MACRO-11 calls to interface with the SNA PE. The RSX-11M application can use all the facilities of RSX-11M and many RSX-11M layered products to implement an application.

The PE provides three levels of support for the RSX-11M application: Emulator Control (EC) mode, Extended Emulator Control (XEC) mode, and Application Control (AC) mode. Those interfaces provide different levels of support and user involvement in the SNA protocols. In all those modes, the application's responsibility is to generate and interpret any data transmitted between the cooperating tasks.

This product cannot run concurrently with DECnet-11M or with RSX-11M/3271 Protocol Emulator.

Trademark: IBM is a registered trademark of International Business Machines Corporation.

Price: Available upon request

RT-11 2780/3780 Protocol Emulator, Version 4.1

SPD Number: 10.16
Operating System: RT-11
Keywords: Data conversion
File transfer
Networking

Distribution media: 9-track 800 bpi magnetic tape, RK05, RL01, RL02, RX01, RX02, RX50, TU58 DECtape II cartridge.

This protocol emulator (PE) provides communications capabilities similar to IBM® 2780 and 3780 remote batch terminals. The emulator runs under the RT-11 Foreground/Background (FB) or Extended Memory (XM) monitor as either a foreground or a background job. The emulator accepts commands interactively or from indirect command files. Commands are provided for operation in unattended environments. The emulator supports operation of a single full- or half-duplex synchronous point-to-point line at transmission speeds up to 9600 bits a second on an otherwise idle system (maximum line speed on the PDT-11 is 4800 bits a second). Support for automatic answer to incoming calls is also available for use with modems that provide such capability.

The communications discipline implemented by the RT-11 2780/3780 PE is a subset of IBM's Binary Synchronous Communications (BSC) protocol, which uses the EBCDIC transmission code. Horizontal-format control records can be received and processed. A subset of vertical-format control escape sequences is supported, specifically single, double, and triple space, form feed, and space suppress. Any block-addressable storage device supported by RT-11 can be used as a source of transmission files. Both fixed-length (80-character card image) and variable-length data can be transmitted as either EBCDIC (automatically translated from ASCII) or binary data (no translation). BSC control characters are automatically added to the data before transmission and are stripped on reception. Any block-addressable storage device or line printer supported by RT-11 can be used to receive files.

Trademark: IBM is a registered trademark of International Business Machines Corporation.

Price: Available upon request

UN1004/RSX, Version 2.0

SPD Number: 10.79
Operating System: RSX
Keywords: File transfer
Down-line loading
Networking

Distribution media: 9-track 800 bpi magnetic tape, RK05, RK06.

This PDP-11-based software package provides communication with a UNIVAC 1100 series or other host computer systems capable of using UNIVAC 1004 RMS-1 communications protocol. The software operates under the RSX-11M operating system and provides remote job entry terminal emulation capability. UN1004/RSX communicates with the host, using the RMS-1 communications protocol supporting ASCII line codes.

UN1004/RSX provides for one synchronous communications circuit to a host computer system. The product supports a single switched or dedicated leased line, 2- or 4-wire common carrier facility at transmission rates up to 4800 bps.

The product provides the capability to send data in 80-column card format and to receive data in line format or card format. Data transfers are controlled by console commands entered at the emulated terminal. The emulator permits the terminal operator to direct received data to any RSX-11M system-supported device.

Logical terminal emulation is independent of a physical system terminal. Logical terminal assignment is provided and released by the terminal operator. The product supports ASCII line communication codes.

Price: $4000 - $12,700

VAX 2780/3780 Protocol Emulator

SPD Number: 25.07
Operating System: MicroVMS, VMS
Keywords: File transfer
Operations
Telecommunications

Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TU58 DECtape II cartridge.

The VAX 2780/3780 Protocol Emulator (PE) emulates the synchronous line protocol used by a 2780 or a 3780 Remote Batch Terminal. The emulator enables the VAX/VMS user to transfer data between the VAX/VMS and MicroVMS operating systems and another system equipped to handle 2780 or 3780 communications protocols.

The emulator can be invoked interactively or by a command procedure. The emulator's command set facilitates communication line sharing among several users. With the appropriate modem options, the emulator can automatically answer incoming calls.

Sophisticated operations can be performed by a combination of command procedures, allowing, for example, unattended operation. That would include the capability of detecting an incoming call, establishing the connection, and then transmitting and receiving files and recovering from transmission failures, all without operator intervention.

Several data formats are supported with the use of a particular format selected by user command. Users can select various forms control translation schemes, variable-length records or card images, ASCII/EBCDIC translation, and BSC transparency. All file I/O is performed through the

VAX/VMS record management facility. Print and punch stream recognition is implemented so that the data-manipulation scheme can differ with each stream.

The product can concurrently run up to four physical lines, each with a different set of attributes - some can be 2780, the others 3780 - at speeds between 1200 and 9600 bps a line.

Price: Available upon request

VAX 3271 Protocol Emulator, Version 2.3

SPD Number: 25.21
Operating System: MicroVMS, VMS
Keywords: Networking
Programming tools
Simulation

Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TU58 DECtape II cartridge.

The VAX 3271 Protocol Emulator (PE) enables VAX/VMS or MicroVMS VT100 terminals and application programs to interact with IBM® system application programs and system services that use the Binary Synchronous Communications (BSC) line discipline.

The 3270 Terminal Emulator utility allows the VT100 user on a VAX/VMS system to access an IBM system, a useful feature for users who are implementing distributed processing with VAX systems. Users who are moving applications from centralized mainframes to VAX/VMS distributed processors will find this capability an efficient migration tool during the transition phase. Users who occasionally access applications that remain on mainframes can access those applications through their local VAX systems.

The application program interface provides a base for distributed applications in which one component of the application runs in an IBM host system and the other component in a VAX. That type of application is useful in situations such as on-line access and update of a mainframe database in response to an event in the VAX or when it is inappropriate to present a 3270-style formatted screen to a user who is accustomed to VAX-style screens.

Trademark: IBM is a registered trademark of International Business Machines Corporation.

Price: $1125 - $5500

VAX MAILGATE for MCI Mail®, Version 1.0

SPD Number: 27.34
Operating System: VMS, MicroVMS
Keywords: Communications
Electronic mail
Networking
Office systems
Telecommunications

VAX MAILGATE for MCI Mail is a layered software application product that allows ALL-IN-1 users access to the MCI Mail delivery option. ALL-IN-1 users can communicate with people outside of their network. A message may be addressed to ALL-IN-1 users on their network, users of other electronic mail systems connected to MCI Mail, Telex subscribers, any postal address in the United States and abroad, and MCI Mail subscribers.

Menus are consistent with the existing user interface. Additional menus prompt the user for addressing information required for each type of delivery. MCI Mail recipient addresses may be stored in an ALL-IN-1 distribution list. There is no new system to learn, only a few new menu options. An on-line HELP facility is available.

Trademark: MCI Mail is a registered trademark of MCI Communications Corporation.

Price: $7,500

VAX OSI Transport Service, Version 1.0

SPD Number: 27.15
Operating System: VMS, MicroVMS
Keywords: Cluster environment
Communications
Networking
Protocols
Transport service

The VAX OSI Transport Service is an implementation of the Open System Interconnection (OSI) Transport and Internet Network Services, as defined by the International Organization for Standardization (ISO) in international standards ISO 8072, ISO 8073, and ISO 8473.

OSI has been developed by ISO to allow computers which are made by various manufacturers to communicate with each other using well-defined, internationally accepted protocols. This eliminates the problem of different computer manufacturers using incompatible proprietary communication software and protocols.

The VAX OSI Transport Service is for our customers who want to explore networking in an open environment. This provides them the means to work with the ISO protocols defined so far. These protocols only offer program-to-program communication. No higher-layer functionality (such as file transfer, electronic mail, or virtual terminal) is provided.

Price: $4,980

WIN

SPD Number: X0.30
Operating System: VMS, MicroVMS
Keywords: Networking
File transfer
Communications
Telecommunications

Distribution media: 9-track 1600 bpi magnetic tape

WIN is a software communications product that supports the interconnection of VMS and other systems that incorporate the Transmission Control Protocol/Internet Protocol (TCP/IP). TCP/IP is a protocol standard that was developed by the Department of Defense to provide interoperability between computer systems from different vendors. IP and TCP correspond to the third and fourth layers of the ISO model for communications. They work with high-level protocols that are supplied with TCP/IP to provide network functionality that is similar to DECnet. Both BSD UNIX™ and the DIGITAL ULTRIX operating system incorporate TCP/IP for communications.

WIN provides three Department of Defense standard application-level software services for VMS users:

- Virtual Terminal - The TELNET Protocol allows a user to connect (login) to a remote host from the local host and use the resources of the remote host.
- File Transfer - The File Transfer Protocol (FTP) permits the transfer of both text and binary files between hosts on the network. File format differences are automatically resolved.
- Electronic Mail - The Simple Mail Transfer Protocol (SMTP) allows users to send and receive mail over the network using standard VMS mail facilities.

Trademark: UNIX is a trademark of AT&T Bell Laboratories.

Price: Available upon request

XEP (X.25/X.29 Extension Package)

SPD Number: 26.43
Operating System: VMS
Keywords: Asynchronous communication
Networking

Distribution media: 9-track 1600 bpi magnetic tape, RX01, TU58 DECtape II cartridge.

VAX XEP allows a properly configured DECnet-VAX system in a point-to-point DECnet or Ethernet network to make logical connections to Packet Switching Data Networks (PSDNs) conforming to CCITT recommendation X.25 (June 1980) by way of a DECnet Router/X.25 Gateway. The DECnet Router/X.25 Gateway is described in SPD 30.41.00. The XEP, with the Router/Gateway providing physical connection(s) to a PSDN, enables process-to-process and terminal communications between the VAX and remote Date Terminal Equipment (DTE) in an X.25 network.

DECnet logical links are established by VMS to connect the VAX host to the Router/Gateway. VAX XEP uses those links to transmit X.25/X.29 messages between the Router/Gateway and the host.

VAX XEP supports access for VMS user programs written in VAX MACRO and native-mode high-level languages, such as VAX FORTRAN. Programs executing in PDP-11 compatibility mode cannot use VAX XEP.

VAX XEP is one of a set of DIGITAL products for X.25 communications called the Packetnet Systems Interface (PSI) software. The interfaces implemented in VAX XEP are fully compatible with those of the other VMS members of the product set, such as VAX PSI (SPD 25.40.00). Thus, VAX XEP and VAX PSI cannot operate concurrently on the user's system.

Price: $900 - $1500

Computer Integrated Manufacturing

Computer integrated manufacturing (CIM) is a business strategy that reflects the way leading manufacturing companies are approaching the management of their operations. These companies see CIM as an opportunity to improve both revenue growth and profitability. Beyond that, they often see CIM as a strategy for developing a competitive edge in the marketplace.

Simply stated, CIM improves the entire manufacturing enterprise by integrating the information flow within and between all its functions. It means that production is effectively coordinated with materials management, that production engineering gets designs from design engineering quickly, and that all functions, from sales and marketing to qualify control and the factory floor, are tightly coupled.

Because the requirements of CIM fit so well with DIGITAL's traditional strengths in distributed processing, networking, inter-product compatibility and systems flexibility - what we call the "DIGITAL Style of Computing" - we've invested heavily to develop CIM products and services. And we've worked hard to overcome the major obstacles facing companies that implement CIM strategies.

One major obstacle to CIM implementation is that many manufacturers have already created islands of automation on the factory floor. These task-oriented islands use a variety of programmable controllers, factory data collection devices, robots and computer-controlled machines from different vendors. And they often can't communicate, either with each other or with information systems that help manufacturing managers make informed decisions.

BASEVIEW

SPD Number: 26.95
Operating System: VMS, MicroVMS
Keywords: Application development
Production control
Shop floor control

BASEVIEW is a Computer Integrated Manufacturing application tool layered under VAX/VMS and MicroVMS. It reads and translates IGES (Initial Graphics Exchange Specifications) formatted CAD files for display and review on a variety of low cost terminals. BASEVIEW adheres to NBS (National Bureau of Standards) and IGES, Version 2.0 proposed specifications for those entity types and forms which it supports.

BASEVIEW features include:

- IGES translation
- Graphics display
- Menu interface
- Search and query
- File handling
- HELP
- Color

Price: Available upon request

BASEWAY APPLICATION BUS

SPD Number: 26.66
Operating System: VMS
Keywords: Application development
Production control
Shop floor control

The BASEWAY APPLICATION BUS provides tools for the development and control of complex manufacturing applications where accurate and timely communication with shop floor devices is vital

BASEWAY software monitors and controls industrial control devices such as programmable controllers and bar code readers. Through custom software applications, BASEWAY software can also accommodate robots, material-handling equipment, and NC machines. Those applications allow real-time access to information about the entire production process.

BASEWAY software integrates industrial controllers on the factory floor with manufacturing applications operating on the VAX host computer. BASEWAY software also provides one common user interface to the computer system network, applications, and shop floor devices. The integration of BASEWAY software and manufacturing software applica-

tions provides increased productivity through prompt identification of problems, improved quality control, reduced scrap and rework, and expandibility.

BASEWAY software consists of three software components:

- Shop Floor Gateway acquires data from industrial controllers by either continuous polling or direct access.
- BASEWAY Application Bus provides a common data source for the use and development of manufacturing applications software packages.
- BASEWAY Programmable Device Support Application Package allows for the uploading and downloading of programmable controller programs. Custom applications can be developed to address the specific manufacturing needs of each customer. Some typical applications include production monitoring, maintenance management, factory alarm annunciation, quality reports, and equipment cycle and maintenance reports. Refer to SPD 14.85, SHOP FLOOR GATEWAY, and 26.67 PROGRAMMABLE DEVICE SUPPORT, when requesting further information on this product from your local DIGITAL sales office.

Price: Available upon request

CMR21 Host Utility

SPD Number: 30.39
Operating System: RSX, VMS
Keywords: Communications
Device drivers/handlers
Programming tools
Project management

This library of RSX-11/VMS utility programs assists users of CMR21 distributed industrial control processors in configuring and supporting networks of CMR21 units. This utility is not required to operate the CMR21. However, in applications that have many CMR21 processors distributed over a wide area, the utility provides a convenient set of nonprivileged executable tasks to determine network configuration and to access individual processors in the network.

The CMR21 Host Utility is compatible with VAX/VMS and PDP-11/RSX-11. The utility supports both mapped and unmapped memory configurations and is distributed in Files-11 format.

Price: Available upon request

DECtap Manufacturing Option

SPD Number: 14.93
Operating System: RSTS, Micro/RSTS
Keywords: Inventory
Manufacturing
Order management
Shop floor control

The DECtap Manufacturing Option provides the discrete, build-to-order manufacturer with a system that assists in managing customer quotes, maintaining raw material and finished goods inventories, maintaining product structure and manufacturing routing data, work center and order scheduling, releasing and tracking shop orders and collecting order cost data. The DECtap Manufacturing Option requires the DECtap Base System to operate.

All of the DECtap applications allow concurrent data entry by multiple users. The number of users concurrently entering data into any given application is limited by the number of terminals on the system.

DECtap software offers a means of adapting certain aspects of the software to meet specific user requirements. This is accomplished through an easy-to-use interactive tailoring facility. The tailoring process involves answering a series of questions which relate to the nature of the customer's business operation.

Features:

- Inventory management
- Order management system
- Product data management
- Shop control and costing
- Inventory control

Price: $7,000

DECtap Manufacturing System, Version 1.3

SPD Number: 14.84
Operating System: VMS
Keywords: Accounting
Inventory
Menus
Report generator
Security

Distribution medium: RL02.

The DECtap Manufacturer is a group of multiuser business data processing software systems for the discrete build-to-order manufacturer. The DECtap Base System provides utilities and file architecture support for Inventory Management, Order Management, Product Data Management, and Shop Control and Costing systems. DECtap Manufacturing interfaces with Order Processing, Accounts Receivable, Accounts Payable, Purchase Order Control, General Ledger, Sales Analysis, and Payroll systems. (Refer to SPD 14.32.00 for detailed descriptions of those DECtap optional systems.)

DECtap offers a means of adapting certain aspects of the software to meet specific user requirements through an easy-to-use interactive tailoring facility. The tailoring process involves answering a series of questions about the customer's business operations.

Self-paced instruction manuals are provided for Inventory Management, Order Management, Product Data Management, and Shop Control and Costing systems complementing tutorial data stored on the DECtap system. Hands-on interaction allows users to progress at their own rate simulating actual data entry and report preparation.

DECtap customer documentation is provided.

Price: $1500 - $2000

DPM (Distributed Plant Management), Version 4.1

SPD Number: 15.06
Operating System: RSX
Keywords: Database management
Diagnostics

DPM software is provided for PDP-11 host systems running under the RSX-11M operating system. DPM allows user-written tasks in a DPM host to communicate through the DECdataway with multidropped devices connected to the DPM host.

DPM hosts control the DECdataway through the DECdataway controller driver software, which provides a standard RSX-11M QIO interface for tasks written in MACRO, FORTRAN IV, or FORTRAN-77. The DECdataway controller driver software allows processing of concurrent I/O from multiple tasks and multiple DECdataways. DECdataway controller software also includes separate tasks that initialize each DECdataway controller at system startup, log DECdataway errors to an error file, and format and print the contents of the error file.

DECdataway devices fall into two classes: Factory Data Management (FDM) terminals and DECdataway Intelligent Subsystems. Supported FDM devices include the RT801, RT803, and RT805 terminals; the DPM01 DECdataway multiplexer; the VT110 terminal/multiplexer; and

the DYT01 serial line interface. The DECdataway Intelligent Subsystems include the DECdataway DPM50 I/O Subsystem and the DPM23 programmable DECdataway Subsystem.

Factory Data Management (FDM) software provides a set of utility routines, support tasks, and a dispatcher package that simplify the implementation of data collection and data management with FDM terminals in the factory environment. The DPM DECdataway Intelligent Subsystems software allows application programs to execute in a remote subsystem under RSX-11S and to communicate through the DECdataway to tasks in a DPM host system.

Refer to SPD 15.06 when requesting further information on this product from your local DIGITAL sales office.

Price: Available upon request

DPM-PLUS (Distributed Plant Management), Version 1.1

SPD Number: 15.11
Operating System: RSX
Keywords: Database management
Diagnostics

Distribution medium: 9-track 1600 bpi magnetic tape.

DPM-PLUS software is provided for PDP-11 host systems running under the RSX-11M-PLUS operating system. Distributed Plant Management software allows user-written tasks in a DPM host to communicate through the DECdataway with multidropped devices connected to the DPM host.

DPM-PLUS Software hosts control the DECdataway through the DECdataway controller driver software, which provides a standard RSX-11M-PLUS QIO interface for tasks written in MACRO, FORTRAN IV, or FORTRAN-77. The DECdataway controller driver software allows processing of concurrent I/O from multiple tasks and multiple DECdataways. DECdataway controller software includes separate tasks that initialize each DECdataway controller at system startup, log the DECdataway controller to an error file, and format and print the contents of the error file.

The two classes of DECdataway devices are Factory Data Management (FDM) terminals and DECdataway Intelligent Subsystems. Supported FDM devices include the RT801, RT803, and RT805 terminals; the DPM01 DECdataway multiplexer; the VT110 terminal/multiplexer; and the DYT01 serial line interface. The DECdataway Intelligent Subsystems include the DECdataway DPM50 I/O Subsystem and the DPM23 programmable DECdataway Subsystem.

FDM software provides a set of utility routines, support tasks, and a Dispatcher Package that simplify the implementation of data collection and data management with FDM terminals in the factory environment. The DPM DECdataway Intelligent Subsystems software allows application programs to execute in a remote subsystem under RSX-11S and to communicate through the DECdataway to tasks in a DPM host system.

Refer to SPD 15.11 when requesting further information on this product from your local DIGITAL sales office.

Price: Available upon request

PMCS (Process Monitoring and Control System), Version 1.0

SPD Number: 14.75
Operating System: RSX
Keywords: Engineering
Instrumentation
Process control
Real time

Memory required: 256KB. Distribution media: 9-track 1600 bpi magnetic tape, RK07, RL02.

This product provides real-time monitoring, display, alarm, reporting, and control of continuous industrial processes on the RSX-11M operating system for up to eight operator stations. Color graphics include live-updated process flow graphics display of current values and alarms.

PMCS supports user-written FORTRAN subroutines with full access to the database. Database definition is through interactive CRT, with fill-in-the-blanks forms to specify variable names, scan frequencies, control gains, and so on. Optional functions include supervisory-level control with feedforward or feedback.

The system performs time-scheduled scans of analog and digital process inputs and converts process units into engineering units. Plus, chainable general equations are used for calculations, such as calculating a value as a function of six selectable terms or for decision making and initiating the processing of variables on a special basis.

This software reduces the overall cost and time to complete projects by enabling the user to concentrate on the industrial application rather than on writing software programs.

A version of this product is available for the VAX computer.

Price: Available upon request

SHOP FLOOR GATEWAY, Version 1.0

SPD Number: 14.85
Operating System: VMS
Keywords: Communication controller
Manufacturing
Shop floor control

Distribution media: 9-track, 1600 bpi magnetic tape (PE).

The SHOP FLOOR GATEWAY product allows a PDP-11 processor to act as a front-end processor for communicating with shop floor programmable devices. A manufacturing application built on BASEWAY APPLICATION BUS can use the SHOP FLOOR GATEWAY to read and write to programmable devices on the shop floor.

The SHOP FLOOR GATEWAY product works together with the BASEWAY APPLICATION BUS product. The SHOP FLOOR GATEWAY provides the actual communications interface to shop floor devices; BASEWAY APPLICATION BUS provides application program communications and control functions. The SHOP FLOOR GATEWAY offloads the automatic data gathering and qualification processing from the VAX processor. Protocol and data conversion as defined by point definitions is performed by the SHOP FLOOR GATEWAY.

The SHOP FLOOR GATEWAY supports the BASEWAY APPLICATION BUS programmable device access routines. These allow application programs to interact with shop floor devices in a variety of ways:

- Generic access
- Polled access
- Direct access

For more information on the BASEWAY APPLICATION BUS refer to SPD 26.66.

Price: $4000

VAX EDCS (Engineering Data Control System)

SPD Number: 26.39
Operating System: VMS
Keywords: Application control
CAD/CAM
File management

VAX EDCS (Engineering Data Control System) is a file management system that is capable of managing all data files generated by a heterogeneous group of CAD/CAM applications. The typical system configuration is one or more local nodes connected to a server node. The local node(s) connects via DECnet to the server node.

VAX EDCS has all the following functions:

- File management
- File access control
- Automatic notification of changes in the file status
- Capability for a file approval process
- File archiving and retrieval
- System management functions
- Security and data integrity by using a common database
- Capability to add user applications

VAX EDCS consists of three main components: user interface, functional components, and a database. The user interface resides on the local node and interacts with the user and the functional components. It is designed to be user-friendly and can accommodate various levels of user expertise (menu-driven for the novice and command-driven for the expert user). VAX EDCS also offers a callable interface that contains routines with which a programmer can write a transparent interface between a CAD application and VAX EDCS. The programmer could also write procedures that extend the VAX EDCS functions.

Most of the functional components and the database reside on the server node. All data to manage files is found in a relational base (VAX Rdb/VMS). The user files are stored in RMS (Record Management System) directories.

VAX EDCS requires a system administrator on site to oversee the day-to-day care of the system. His/her responsibilities include startup and shutdown, user authorization, file archiving and backup, customization of the site, installation, and updates.

Price: $20,000

Device, Drivers and Handlers

DN11 Driver

SPD Number: 25.96
Operating System: VMS
Keywords: Data conversion
Device drivers/handlers
Networking
Telecommunications

The VAX DN11 Driver supports the DN11 Automatic Calling Unit Interface on the VAX/VMS operating system. The DN11 device driver and hardware, under user-programmed instructions, control a Bell™ 801 Automatic Calling Unit (ACU) or equivalent to dial any telephone number in the U.S. Direct Distance Dial Network by establishing a data link between the processor and remote data terminal equipment.

The DN11 ACU interface consists of the DN11-AA, a prewired system unit that mounts up to four DN11-DA line interfaces. When a system unit has more than one line interface, CSR addresses must be consecutive.

The first DN11-DA line interface in the DN11-AA system unit serves as the controller for the remaining line units. For a DN11 having a controller designation of A, equipped with four DN11-DA line units, those four devices must be configured as OBA0:, OBA1:, OBA2:, and OBA3:.

Trademark: Bell is a trademark of Bell Telephone Systems.

Price: Available upon request

DR11-C Driver

SPD Number: 25.97
Operating System: VMS
Keywords: Asynchronous communication
Device drivers/handlers
Programming tools
Telecommunications

The VAX DR11-C Driver supports the DR11-C under the VAX/VMS operating system. The DR11-C is a non-DMA UNIBUS device that provides a general-purpose interface between the UNIBUS and a user's peripheral. The device provides capability for program-controlled parallel transfers of 16-bit data between a VAX processor and an external device. The DR11-C is a single unit for each controller device.

The VAX DR11-C device driver allows VAX-11/750 and VAX-11/780 systems to use the DR11-C as a basic parallel I/O interface between the UNIBUS and an unspecified user peripheral. The VAX DR11-C device driver will support a general user application. VAX DR11-C driver function does not incorporate a specific application, because a variety of

peripherals can be used. The VAX DR11-C driver includes many general-purpose parameters to simplify several applications and also supports DR11-C operation in maintenance loopback mode.

Price: Available upon request

DRE11-C Device Driver

SPD Number: 26.17
Operating System: VMS
Keywords: Asynchronous communication
Device drivers/handlers
Source code control

Distribution media: RX01, TU58 DECtape II cartridge.

The VAX DRE-11 driver supports the DRE11-C interface, a general-purpose parallel interface between the VAX/UNIBUS adapter (UBA) and a user's peripheral. The driver performs Direct Memory Access controlled block transfers of 16-bit data between a VAX processor and an external device. Multiple blocks of data can be transferred without setting up new DMA parameters by hardware-controlled switching of alternate buffers in the processor's memory.

The driver enables the user to communicate with the interface, using the functions in a VAX MACRO language program. The I/O functions are accessible through the $QIO System Service, which may be called from VAX FORTRAN or any high-level language.

Price: Available upon request

DRU11-C RSX-11 Driver, Version 4.2

SPD Number: 13.35
Operating System: RSX
Keywords: Device drivers/handlers

Distribution media: 9-track 800/1600 bpi magnetic tape, RL01, RL02.

The DRU11-C device driver supports the DRU11-C (UNIBUS) interface under the RSX-11M, RSX-11M-PLUS, and RSX-11S operating systems. The DRU11-C is a general-purpose parallel interface between the UNIBUS and a user's peripheral. The device performs Direct Memory Access (DMA) controlled block transfers of 16-bit data between a PDP-11 processor and an external device. Multiple blocks of data can be transferred, without the need for new DMA parameters, by means of hardware-controlled switching of alternate buffers in the processor's memory.

The driver enables the user to communicate with the interface by using the $QIO system service, which is callable from MACRO, FORTRAN, and other high-level languages.

DRU11-C features support of data transfer requests in DMA mode, support of programmed single-word transfers, function/status bit control services, device status information, event recognition services, and data path selection.

Price: Available upon request

IEC11-M, Version 3.0

SPD Number: 14.64
Operating System: RSX
Keywords: Device drivers/handlers

Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RL01, RL02, RX01, TU58 DECtape II cartridge.

The IEC11-M Device Drivers allow programs written in MACRO-11, FORTRAN, and BASIC to communicate with IEEE STD 488 devices connected to the IEC11-A and IEC11-B. This communication is implemented through a choice of direct QIO calls to the executive or a set of subroutines callable from high-level languages.

The IEC11-A and IEC11-B are digital input/output interfaces for the IEEE STD 488 (1978) Programmable Interface Bus System, also known as the General-Purpose Interface Bus (GPIB). The interface boards are compatible with both ANSI MC 1.1 and IEC 625.1 standards.

The IEC11-A is an interrupt-driven interface with full IEEE-488 control capabilities. The IEC11-B is a DMA option that significantly reduces processor loading for long messages when acting as an IEEE-488 talker or listener. Software support of those devices consists of independent drivers that support up to eight IEC11-As and eight IEC11-Bs on a single PDP-11. Each interface can be on the same or on different IEEE-488 buses, up to the limits specified in IEEE STD 488.

Price: Available upon request

IEC11-V Device Driver for VAX/VMS

SPD Number: 25.74
Operating System: VMS
Keywords: Device drivers/handlers
Networking
Pre- and postprocessors
Telecommunications

Distribution media: RX01, TU58 DECtape II cartridge.

The IEC11-V Device Driver allows programs written in MACRO-32, FORTRAN, and BASIC to communicate with IEEE STD 488 devices connected to the IEC11-A and IEC11-B. Communication is implemented through a choice of direct QIO calls to the executive or a set of subroutines callable from high-level languages.

The IEC11-A and IEC11-B are digital input/output interfaces for the IEEE STD 488 (1978) Programmable Interface Bus System, also known as the General Purpose Interface Bus (GPIB). The interface boards are compatible with both ANSI MC 1.1 and IEC 625.1 standards.

The IEC11-A is an interrupt-driven interface with full IEEE-488 control capabilities. The IEC11-B is a DMA option that significantly reduces processor loading for long messages when acting as an IEEE-488 talker or listener. Software support consists of independent drivers that support up to eight IEC11-As and eight IEC11-Bs on a single VAX. Each of those interfaces may be on the same or different IEEE-488 buses up to the limits specified in IEEE STD 488.

Price: $625 - $1560

IEX-RSX-Driver, Version 2.0

SPD Number: 12.68
Operating System: RSX
Keywords: Device drivers/handlers

Distribution media: 9-track 800/1600 bpi magnetic tape, RL02, RX01, RX50, TU58 DECtape II cartridge.

The IEX-RSX-Drivers allow programs written in MACRO-11, FORTRAN, and BASIC-PLUS-2 to communicate with IEEE STD 488 devices connected to the IEQ11-A or IEU11-A. This communication is implemented through direct QIO calls to the executive. The IEQ11-A and IEU11-A are digital input/output interfaces for the IEEE STD 488 (1978) Programmable Interface Bus System, also known as the General-Purpose Interface Bus (GPIB). The interfaces are compatible with both ANSI MC 1.1 and IEC 625.1 standards.

The IEQ11-A generates two interfaces to any Q-BUS (16, 18, or 22 bit). Both interfaces have full IEEE-488 control capabilities and DMA (Direct Memory Access) interfacing to the processor bus, which significantly reduces processor loading for long messages when acting as an IEEE-488 talker or listener. The IEEE-488 bus interfaces thus created are totally independent and can be parts of the same or different IEEE-488 buses.

The IEU11-A generates two interfaces to any UNIBUS PDP-11 system. Both interfaces have full IEEE-488 control capabilities and DMA interfacing to the processor bus, which significantly reduces processor loading for long messages when acting as an IEEE-488 talker or listener. The IEEE-488 bus interfaces thus created are independent and can be parts of the same or different IEEE-488 buses.

Price: $400 - $900

IEX-RT-Handler, Version 1.0

SPD Number: 12.65
Operating System: RT-11
Keywords: Device drivers/handlers

Distribution media: RL02, RX01, RX50, TU58 DECtape II cartridge.

The IEX-RT-Handler software allows programs written in MACRO-11 and FORTRAN to communicate with IEEE STD 488 (1978) devices connected to the IEQ11-A or IEU11-A. That communication is implemented through a programmed request (SPFUN) to the executive. The IEQ11-A and IEU11-A are digital input/output interfaces for the IEEE STD 488 (1978) Programmable Interface Bus System, also known as the General-Purpose Interface Bus (GPIB). The interfaces are compatible with both ANSI MC 1.1 and IEC 625.1 standards.

The IEQ11-A generates two interfaces to any Q-BUS (16, 18, or 22 bit). Both interfaces have full IEEE-488 control capabilities and DMA (Direct Memory Access) interfacing to the processor bus, which significantly reduces processor loading for long messages when acting as an IEEE-488 talker or listener. The IEEE-488 bus interfaces thus created are totally independent and can be parts of the same or different IEEE-488 buses.

The IEU11-A generates two interfaces to any UNIBUS PDP-11 system. Both interfaces have full IEEE-488 control capabilities and DMA interfacing to the processor bus, which significantly reduces processor loading for long messages when acting as an IEEE-488 talker or listener. The IEEE-488 bus interfaces thus created are totally independent and can be parts of the same or different IEEE-488 buses.

The IEX-RT-Handler supports a single IEEE-488 bus interface; therefore, you must install as many copies of the handler, with different names, addresses, and so on, as the number of IEEE-488 bus interfaces that are to be created.

Price: $200 - $500

I/O Subsystem Handler for IP112, IP113, IPV12, IP302, and DPM50, Version 3.0

SPD Number: 15.07
Operating System: RSX
Keywords: Device drivers/handlers
Mapping

The I/O Subsystem Handler provides the capability to access the I/O subsystem hardware and its full complement of I/O module options from tasks written in assembly language, FORTRAN IV/IAS, or FORTRAN IV-PLUS under the RSX-11M, RSX-11M-PLUS, and RSX-11S operating systems.

All IP112, IP113, IPV12, IP302, DPM50-C, and DPM50-H systems include the I/O Subsystem Handlers as standard. I/O Subsystem Handler features include:

- Support of multiple IP112s or IP113s on a single PDP-11. Up to 10 IP112 or IP113 subsystems can be supported by the I/O Subsystem Handler on a single PDP-11 UNIBUS CPU.
- Support of up to five IPV12s on a single PDP-11 Q-BUS CPU running RSX-11M.
- Support of one IPV12 on a single PDP-11 Q-BUS CPU running RSX-11S.
- Support of I/O module expansion of IP112, IP113, IPV12, IP302, or DPM50 configurations up to a maximum of 2032 I/O points.
- Provision for access to I/O modules from tasks written in FORTRAN IV/IAS-RSX or FORTRAN IV-PLUS through a series of callable subroutines based on a superset of the Instrument Society of America (ISA) SP61.1 Standards. Tasks written in MACRO-11 can communicate with I/O modules by way of a set of QIO directions.
- Dynamic module address mapping, whereby the user specifies the generic types of I/O modules to be supported. Logical mapping of module addresses is done by the handler at system startup. Thus, adding I/O modules of the same generic type(s) does not necessitate a new system generation.

- Field interrupt processing. If interrupt support is selected during system generation, three options are available in the handling of digital interrupts. Only the first two options are available in handling the counter interrupts.

Price: Available upon request

MicroVMS TSV05 Device Driver, Version 1.0

SPD Number: 28.08
Operating System: MicroVMS
Keywords: Device drivers/handlers
Graphics

The MicroVMS TSV05 device driver provides full support for the TSV05 magnetic tape interface and drive on the MicroVAX II processor.

The TSV05 subsystem consists of a Q-bus controller board and a TS05 tape drive. Read and Write operations are performed at 25 ips.

The TSV05 subsystem fully supports all MicroVMS Utility programs, such as BACKUP, COPY, DUMP, and DIRECTORY, also at 25 ips.

Price: Available upon request

MIOS-11/RSX Driver, Version 4.3

SPD Number: 10.07
Operating System: RSX
Keywords: Communications
Device drivers/handlers

Distribution media: 9-track 800/1600 bpi magnetic tape, RL02, RX02, TU58 DECtape II cartridge.

This driver, available only in Europe, enables users to access the functionality of the MIOS-11 I/O system hardware. That function includes digital and analog I/O as well as counter, clock, and interrupt functions. The driver allows the user to communicate with the MIOS-11 hardware using QIO directives in standard RSX format for MACRO-11 or the call QIO interface for FORTRAN IV or FORTRAN-77.

For data I/O, the user selects the MIOS-11 module or a group of modules of the same type by specifying the logical unit number of the MIOS-11 controller and a QIO parameter list. The contents of the parameter list depend on the selected MIOS-11 module. A check of the QIO return status and the I/O status block gives the user detailed information about each I/O function initiated and performed.

The MIOS-11/RSX Driver provides two options for processing unsolicited input from digital I/O modules. If connected to interrupt, the occurrence of an interrupt will set an event flag and cause the data to be stored in a circular buffer provided by the connected task. If linked to interrupt, the occurrence will start a task previously linked to interrupt.

The MIOS-11/RSX Driver may be generated either loadable or resident. The size of the driver varies from 0.5 to 4.0K words, depending on the MIOS-11 configuration.

Refer to SPD 10.07.00 when requesting further information on this product from your local DIGITAL sales office.

Price: Available upon request

RSX-11 TSU05 Device Driver

SPD Number: 12.77
Operating System: RSX
Keywords: Device drivers/handlers

Distribution medium: 9-track 1600 bpi magnetic tape.

This device driver supports the TSU05 magnetic tape interface and drive under RSX-11 and RSX-11M-PLUS. Error-logging support for the TSU05 is also available for systems that support error logging.

The TSU05 subsystem consists of a TSU05 controller board and a TS05 tape drive. The TS05 drive operates in either of two modes: 25 ips or 100 ips streaming.

The TSU05 subsystem is compatible with the TS11/TU80 devices for most operations. The TSU05 software allows device registers to be logged when detecting device/tape errors. An error-reporting program is supplied as part of the software package. That special module reports TSU05 errors and is used as part of the normal RSX-11 error-logging and reporting process, by the program RPT.

The TSU05 subsystem supports RSX-11 utility programs, such as PIP and FLX, as well as RMSBCK and RMSRST. The UETP (User Environment Test Program) is also supported (as a TS-11 emulation only). RSX-11 utility programs use the TSU05 in 25 ips mode only.

An Installation Verification Program (IVP), showing how to program the TSU05 for 100 ips operating mode, is supplied.

Price: Available upon request

TSU05 Device Driver

SPD Number: 26.65
Operating System: VMS
Keywords: Device drivers/handlers
Diagnostics

Distribution medium: 9-track 1600 bpi magnetic tape.

The VAX-11 TSU05 Device Driver provides full support for the TSU05 magnetic tape interface and drive on VAX-11/730 and 750 processors and full error-logging support as well. This drive can take advantage of the speed provided by the TSU05 subsystem, which consists of a TSU05 controller board and a TS05 tape drive. The TS05 drive operates in either 25 ips or 100 ips streaming mode.

Default operation is to 25 ips read and write speeds; 100 ips as a copy facility can be incorporated by the user into an application so that the processor is totally committed to the task. However, this high-speed facility is unsupported and is provided without any warranty.

The TSU05 subsystem is compatible with the TS11/TU80 devices for most operations, the main differences being in the number of device registers. The TSU05 software allows the full set of device registers to be logged when detecting device/tape errors. A special error-reporting program supplied as part of the software package will report only TSU05 errors; the standard VMS error-reporting program (SYE) is used for all other types of errors.

The TSU05 subsystem supports only VAX/VMS utility programs, such as BACKUP, COPY, DUMP, and DIRECTORY, at 25 ips. The UETP (User Environment Test Program) is fully supported.

Price: Available upon request

VAX TU70/72 Device Driver, Version 1.0

SPD Number: 27.09
Operating System: VMS
Keywords: Device drivers/handlers

The VAX TU70/72 Device Driver is an integration product, enabling the se of TU70 or TU72 tape transports in an environment consisting of VAX, DECsystem-10, and DECSYSTEM-20 systems. The driver forms an interface between VMS and the tape subsystem that allows users to access these tape transports as they would any other VMS tape device. The driver performs hardware specific functions for tape positioning, tape read/write, user mode diagnostic support, and error logging.

The VAX TU70/72 device driver provides support for TU70/72 tape subsystems on VAX-11/780, VAX-11/782, and VAX-11/785 processor. The TU70/72 tape subsystem consists of a DX20 programmed device

adapter, a TX01/02 magnetic tape control unit, and TU70/72 tape transports. The TX01/02 magnetic tape control unit can be configured for dual port access via the addition of a TX03 option. This allows sharing of tape drives between the VAX and the DECsystem-10 or DECSYSTEM-20 operating systems.

NOTE

Individual TU70 or TU72 tape transports must be allocated to only one system at a given time through operator control. Allocation to multiple systems can result in indeterminate results.

Price: $4,000

VS11-VAX Driver

SPD Number: 25.45
Operating System: VMS
Keywords: CAD/CAM
Device drivers/handlers
Graphics

Distribution media: RX01, TU58 DECtape II cartridge.

The VS11-VAX Driver provides all the I/O services required for communication between a VAX/VMS host and a VSV11/VS11 graphics subsystem. The VS11-VAX Driver enables the user to communicate with the VSV11/VS11, using the QIO executive directive in a MACRO assembly language program or a VAX FORTRAN program.

Features are:

- Execution of a display file containing VS11-specific graphics instructions
- On-demand use of an auxiliary memory segment that contains VS11 instructions, providing extended addressing to the VS11
- Reading back of the four VS11 device registers
- Execution of STOP/RESUME display file
- Waiting for an interrupt that will be generated when the VS11 joystick switch is pressed
- Specifying the QIO complete timeout parameter for display file execution QIOs

Price: Available upon request

VS5XX DMA Driver, Version 1.0

SPD Number: 28.19
Operating System: MicroVMS
Keywords: Drivers
Graphics
Workstations

The VS5XX DMA Driver Package is a companion software component for the VS550, VS555, and VS565 high performance, high resolution, color graphic workstations. These workstations link a MicroVAX II with the Tektronix® 4125/VS5XB graphics subsystem via a high speed DMA parallel interface. The driver package can also be used in conjunction with a field installed VS5XX-UD DMS interface.

The high speed DMA parallel interface and the DMA driver have been demonstrated to provide improvement in 2D-, 3D-Wire Frame, and 3-D Solids application performance over using just the standard serial interface. The actual performance improvement is governed by the nature of the application, appropriate use of both the serial and DMA ports, and the size of the data blocks being transferred.

The DMA driver package provides three levels of application program interface:

- Application output interface level (subroutine library)
- Application device driver level (subroutine library)
- Operating system device driver level (QIO)

The output interface level provides basic write-only access to the segment capabilities of the Tektronix 412X/VS5XB with 16- and 32-bit graphic data accuracy. This level also serves as a template for users who wish to take advantage of the performance improvement realized using Tektronix "opcodes" to perform their graphic functions instead of "escape sequence" commands. This level utilizes the application device driver to implement its functions.

The application device driver provides the basic mechanism to transfer blocks of data to and from the graphics subsystem, as well as, synchronization of the serial and DMA ports. The functions of this level are implemented via QIOs to the operating system device driver level.

The third level, operating system device driver (QIO) provides access to all DMA functions. This level requires that the application provide all synchronization between the serial and DMA ports. All three levels conform to the VMS calling standard.

Price: $500

VSV11-M/M-PLUS Driver, Version 2.2

SPD Number: 14.53
Operating System: RSX
Keywords: Device drivers/handlers
Graphics

Distribution media: 9-track 800/1600 bpi magnetic tape, RL01, RL02, RX01.

This driver provides all the I/O services required for communication between an RSX-11M/M-PLUS host and a VSV11/VS11 graphics subsystem. The driver is conditionally resident or loadable and will operate with or without PDP-11 memory-management hardware.

The driver enables the user to communicate with the VSV11/VS11 using:

- The QIO executive directive in a MACRO assembly language program or a FORTRAN IV or FORTRAN-77 program
- AST executive services for user notification of interrupt generation associated with use of the VSV11/VS11 joystick.

The VSV11-M/M-PLUS Driver features:

- Execution of a display file containing VSV11-specific graphics instructions
- Ability to attach or detach the VSV11 for individual use
- On-demand use of an auxiliary memory segment that contains VSV11/VS11 instructions, providing extended addressing to the VSV11/VS11
- Reading of cursor location coordinates
- Read-back of pixel data from the VSV11/VS11 screen
- Execution of STOP/RESUME display file
- Linkage to AST routines that are queued to the user task when the driver receives a joystick associated interrupt.

Price: Available upon request

Education

Any software distributed by DIGITAL can be used in an educational setting. In some cases, special pricing and licensing programs can be designed for qualified educational institutions. The entries in this section describe software specifically designed for educational needs. However, the reader is encouraged to refer to other sections of the handbook for product availability, and then check with the local DIGITAL sales office regarding educational pricing.

C.A.S. Delivery System, Version 1.5

SPD Number: 27.17
Operating System: MicroVMS
Keywords: Computer-aided instruction
Forms management
Graphics

The C.A.S. Delivery System combines a user interface and a utility package, designed for delivering and monitoring computer-based instruction. C.A.S. Delivery System is a VMS layered product which requires a GIGI (VK100), VT125, VT240 or VT241 terminal or compatible device.

C.A.S. Delivery System includes the run-time libraries, a user interface, and utilities. The run-time libraries provide support for lessons developed with C.A.S., Version 1.1 and VAX DAL, Version 1.5.

Price: $5,000

Courseware Authoring System, Version 1.5

SPD Number: 25.95
Operating System: MicroVMS, VMS
Keywords: Computer-aided instruction
Forms management
Graphics

Distribution media: 9-track 1600 bpi magnetic tape, RX50, and TK50.

This system combines a powerful, easy-to-learn authoring language with a user interface and a utility package for developing, delivering, and monitoring computer-based instruction. CAS requires a GIGI (VK100), VT125, VT240, or VT241 terminal.

CAS components include the authoring language compiler, run-time library, user interface, utilities, and a computer-based instruction lesson on DIGITAL Authoring Language (DAL).

- DAL is a high-level programming language for computer-based instruction. DAL features special response-judging capabilities, including a spelling algorithm, logging of lesson performance information, screen addressing, and full graphics integration.
- The run-time library is shared among users for improved performance during lesson delivery.
- The menu-driven user interface provides access to CAS and supports authors, instructors, and students. The menus are tailored to meet the needs of each user type.
- The utilities contain 11 report programs that access data files to produce reports for the instructors and the authors. Reports contain information only for the author's or instructor's group. The reports

use both graphics terminal output and line printer output. The reports include student status report, responses to a unit in a lesson, student scores for a lesson, and available lessons.

Price: $4200 - $7000

Courseware Design System

SPD Number: 26.58
Operating System: VMS
Keywords: Computer-aided instruction
Development tools

Distribution media: 9-track 1600 bpi magnetic tape, RX01, TU58 DECtape II cartridge.

This menu-driven system for developing computer-based instruction material uses predefined video forms called templates. A template is designed for a user with no programming background.

The system provides three predefined sample templates and the capability to create and modify templates. The sample templates are fully functional and may be used to create multiple-choice, tutorial, or paragraph-comprehension lessons. The product also includes four test templates that can be changed or modified by template developers. The template screen prompts the user to enter lesson information in a fill-in-the-blank manner. A special command allows easy incorporation of separately generated ReGIS graphics within the lesson.

A menu option automatically generates a DIGITAL Author Language (DAL) source program from a C.D.S. lesson. The DAL source program can then be compiled and linked for use with the Courseware Authoring System (C.A.S.). In order to provide scoring and student management functions, the Courseware Authoring System is required.

Price: $1200 - $2000

LOGO™

SPD Number: A0.72
Operating System: P/OS
Keywords: Personal computing
Graphics
Mathematical concepts
Programming language

LOGO for the Professional is a user-flexible programming language. It is interactive and creates a relaxed environment for the development of mathematical concepts and problem-solving skills. LOGO can be used to develop learning tools, enhance computer literacy, and develop applica-

tions using graphics, mathematics, text-handling, and file manipulation. LOGO on the Professional takes advantage of the Professional's processing power and superior graphics capabilities.

Features:

- Easy to learn and use
- Supports multi-tasking, 16-digit precision floating point, RMS file services, and GIDIS graphics library
- Provides three levels of HELP
- Math functions include random number generator, Power, PI EXPonent, Arctan and natural logarithms
- Procedures can be created and called from within other procedures
- "Recursive" procedures can operate on themselves to solve complex mathematical problems or create unusual graphic effects
- Data types do not have to be specified
- It can display eight colors from a palette of 256, plus windows and variable-sized and angled-type fonts

Trademark: LOGO is a trademark of Design Research, Inc.

Price: $350

VAX DAL, Version 1.5

SPD Number: 27.18
Operating System: VMS, MicroVMS
Keywords: Authoring language
GIGI
Graphics
Programming language
Education

VAX DAL (DIGITAL Authoring Language) is a powerful, easy-to-learn authoring language designed for developing computer-based instruction. VAX DAL is a VMS layered product which requires a GIGI (VK100), VT125, VT240 or VT241 terminal or compatible device.

VAX DAL components include the authoring language compiler, run-time library, and a computer-based instruction package on VAX DAL (VAX DAL CAI).

Price: $4,800

Graphics

ATHENA/graph™, Version 1.0

SPD Number: A2.82
Operating System: P/OS
Keywords: Personal computing
File transfer
Graphs
Office productivity
Presentation aids

ATHENA/graph is a business and decision graphics application package for the Professional 350, and provides the user with a set of graphs that can be customized using ATHENA/graph's editing capabilities. These customized graphs can be saved and added to a set of graphs for future use.

In addition to presenting the graphs on the screen, ATHENA/graph can output graphs to a printer and to Hewlett-Packard pen plotters.

Using ATHENA/graph, one can obtain data from various other software packages running on the Professional 350 system.

Trademark: ATHENA/graph is a trademark of Ship Analytics, Inc.

Price: $450

AutoCAD™-ADE

SPD Number: X0.08
Operating System: MS™-DOS
Keywords: Personal computing
Architecture
Computer-aided design
Engineering designs

Developed by AutoDESK, Inc., AutoCAD-ADE is a computer-aided drafting and design system that brings the benefits of a high-performance drawing facility within the range of even the smallest office. Using the Rainbow system's superior graphics, AutoCAD-ADE can produce virtually any kind of drawing for such applications as mechanical, architectural, electrical and electronic design; flowcharts; artwork; office layouts; form designs; site safety plans and much more. AutoCAD-ADE is used worldwide by engineers, architects, system designers, shopfitters, graphic designers, and facilities planners. It provides a complete professional drafting system with features normally found on mini and mainframe systems costing much more.

Features:

- Menu-driven and easy to learn
- Supports a wide variety of optional input devices (graphics tablets, digitizers, and mice).

- Supports a wide variety of plotters (including DIGITAL's LVP16)
- Drawing elements include lines, circles, arcs, traces of any width, solids - and inserts of other drawings
- Supports custom-created menus, shape libraries, fonts and styles
- Text of any size, position and angle, from a variety of fonts and styles can be included within a drawing.
- Shapes and objects can be moved or "dragged" to other locations.
- Powerful "ZOOMing" feature allows full-screen editing of a portion of a drawing or viewing an entire drawing from a distance.
- Dimensioning facility can create linear, angular, and radical dimensions, with or without tolerances.
- SKETCH mode allows free-hand drawing on the screen.
- "OOPS" command allows correction of mistakes.
- Supports 8087 math coprocessor for increased speed of display and mathematical calculations.

Trademark: AutoCAD is a trademark of AutoDESK, Inc.

MS is a trademark of Microsoft Corporation.

Price: $2,500

BCP (Barcode/Block Character Plotter)

SPD Number: 26.26
Operating System: VMS
Keywords: Bar coding
Forms management
Printing

This software package enables VAX/VMS users to generate CODE 39 barcode on an LXY graphics printer. The package includes an interactive user program that permits on-line generation of graphics figures. The graphics figures, generated by library routines, include CODE 39-type barcode, block characters, and horizontal and vertical bars or lines.

The package also includes a library of graphics routines that can be linked to user application programs written in VAX-11 FORTRAN to provide graphics capabilities. User-written application programs access the VAX-11 BCP library routines to specify designs for shipping labels, shelf labels, barcodes, identification labels, forms, signs, and accounting documents.

Price: Available upon request

BCP (Barcode/Block Character Plotter), Version 1.0

SPD Number: 14.72
Operating System: RSX
Keywords: Bar coding
Forms management
Mapping

BCP enables RSX-11M users to generate CODE 39 barcode on the LXY11, LXY21, or LXV11 printer/plotter.

The package consists of:

- An interactive user program that permits on-line generation of graphics figures. The graphics figures, generated by library routines, include CODE 39-type barcode, block characters, and horizontal and vertical bars or lines.
- A library of graphics routines that can be linked to user application programs written in FORTRAN-77. Those programs access the BCP library routines to specify designs for shipping, shelf, and identification labels; barcodes; forms; signs; and accounting documents. Graphics requests are processed into an output format that generates plots on the line printer. The graphics figures are converted into plot lines and points and are resequenced or sorted to correspond to the line printer paper movement. The resultant rasterized output is then written on an intermediate file. The contents of that file can later be spooled or transferred to the LXY or LXV line printer, through the standard LP11 line printer driver, using the PIP system utility. Direct output to the line printer is permitted by selecting either an ASG task build option or an MCR command (REAS).

A version of this product is available for the VAX computer.

Price: Available upon request

Daisy-Aids™

SPD Number: A1.15
Operating System: CP/M®
Keywords: Personal computing
Charts
Graphs

Daisy-Aids creates graphs using the plotting features of the daisy wheel printer. Graphs are created in three steps. First, select the graph type, line, bar, scatter, pie chart, or block chart. Second, enter the titles and axis descriptions. Third, enter the actual data to be plotted. Special enhancements (resolution, plotting character, placement of legends, etc.) can be included to improve the graph presentation.

Each graph is maintained in a separate file which can be edited and deleted. A separate INSTALLATION program is provided for selecting the CRT and daisy wheel printer types.

Features:

- Line/Bar/Scatter Graphs
- Pie Charts
- Block Charts

Trademark: Daisy-Aids is a trademark of Escape Computer Software, Inc.

CP/M is a registered trademark of Digital Research, Inc.

Price: $200

DECgraph

SPD Number: 26.07
Operating System: MicroVMS, VMS
Keywords: Graphics
Presentation aids

Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TU58 DECtape II cartridge.

VAX DECgraph is a general-purpose graphics plotting package that allows users to create, change, display, and print graphs. Individuals can use VAX DECgraph for decision support and presentations.

A version of this product is available for the PDP-11 computer.

Price: Available upon request

DECmate Graphics Terminal Emulator, Version 2.0

SPD Number: 60.11
Operating System: WPS
Keywords: Graphics
Terminal emulator

The DECmate Graphics Terminal Emulator allows the DECmate II Office Workstation or DECmate III word processor to be used as a VT100 series or VT200 series text and graphics terminal while connected to a DIGITAL VAX host. This allows the DECmate to support most VT125 or VT240 functions on the host system. The product can also appear as a VT220, VT100, or VT52 terminal while connected to a DIGITAL host.

While operating in graphics mode and connected to a VAX host, the user may execute most DIGITAL software that uses the ReGIS protocol, such as VAX DECgraph, VAX DATATRIEVE, PolyGRAPHIX, Courseware Authoring System, and A-to-Z Business Graphics on the DECmate II or DECmate III system. These applications may be accessed through ALL-IN-1 Office Menu on the VAX or A-to-Z Integrated System on a Small Business System.

Price: $195

DECOR (Core Graphics System)

SPD Number: 25.05
Operating System: MicroVMS, VMS
Keywords: Presentation aids
Programming tools

Distribution media: RX01, TU58 DECtape II cartridge.

VAX DECOR is a graphics subroutine package that provides an interface between an application program and graphics devices. The interface is device independent and supports user-developed device handlers, as well as those supplied with VAX DECOR. VAX DECOR includes commonly required device handler routines and detailed documentation designed to guide and assist in the development of user-specified device handlers.

VAX DECOR is based on the ACM/SIGGRAPH Graphics Standard Planning Committee's 1979 "Core Graphics Proposal" and includes 2-D direct and buffered output (level 2), a subset of synchronous input (level 2), and most "Raster Extensions."

Refer to SPD 25.05 when requesting further information on this product from your local DIGITAL sales office.

Price: $3000 - $6000

DECslide

SPD Number: 26.11
Operating System: MicroVMS, VMS
Keywords: Presentation aids
Text management

Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TU58 DECtape II cartridge.

This menu-driven graphics presentation utility is for users who create or prepare materials for in-house presentations. Both symbols and text are used for menu selection.

VAX DECslide uses an interactive interface to display diagrams and text being entered. Editing functions permit changes to slides being created or saved.

A strip (text) menu and message area at the bottom of the screen displays user options, HELP messages, and operation status. A directory feature lists the slides, including the date and time of creation, slide name, and comments.

Slides can be colored with available color palettes. The slides can be printed (single- or double-size format), saved (filed), copied, exported, changed, or deleted.

Price: $500 - $3750

DESIGN GRAPHIX™/Executive

SPD Number: A3.30
Operating System: P/OS
Keywords: Personal computing
CAD
File transfer
Graphics
Menus
Office productivity

DESIGN GRAPHIX/Executive (DGx/Exec) for the Professional 350 is a user friendly, menu-driven, two-dimensional version of the DESIGN GRAPHIX computer-aided design and drafting (CADD) system. DGx/Exec is designed for such users as executives or engineering managers. DGx/Exec features two-dimensional graphics, geometric creation, figure and text insertion, graphical editing, display controls, bit pad, and plotter support.

The menus are designed to be similar in syntax to those of P/OS operating system, thereby providing a smooth transition from existing P/OS operating system applications to the DGx/Exec program.

DGx/Exec provides an electronic "Mark-Up Pen" concept, which allows the executive or manager to create prominent notes and messages on existing drawings. This capability is intended to allow the user to markup drawings without actually performing the detailed edits.

Trademark: DESIGN GRAPHIX is a trademark of Engineering Systems Corporation.

Price: $595

DR Logo™

SPD Number: A4.56
Operating System: MS™-DOS
Keywords: Personal computing
Graphics
Programming tools
Teaching aid

DR Logo is an enhanced version of Logo and is an easy-to-use programming language originally developed to teach programming fundamentals. Being a graphics-oriented language, DR Logo takes full advantage of the Rainbow 100 computer's excellent graphics display capabilities. Features include:

- Easy to use with on-line HELP facility that displays and explains all of DR Logo's primitives
- English-like commands control "Tuttle" movement and direction
- Automatic loading and execution of program files
- Screen-oriented editor allows editing of procedures in memory or on disk
- Takes advantage of the Rainbow's special function keys
- Split screen and text windowing
- Supports upper- and lowercase (but commands must be in uppercase)
- Provides enhanced string and list processing
- Provides medium-resolution (384 × 240 pixels) and high-resolution (800 × 240 pixels) modes.

NOTE

DR Logo is a self-loading application and does not require additional operating system software.

Trademark: DR Logo is a trademark of Digital Research, Inc.

MS is a trademark of Microsoft Corporation.

Price: $200

Driver for 11C03

SPD Number: 25.56
Operating System: VMS
Keywords: Asynchronous communication
Device drivers/handlers
Networking
Telecommunications

The VAX Driver for 11C03 provides a DMA interface for up to eight serial line graphics terminals running on the VAX/VMS operating system and supports rapid image generation during interactive design sessions on compatible graphics terminals. The VAX Driver for 11C03 uses variable-length block DMA transfers for output data to reduce the VAX CPU loading imposed by high data rates to the serial lines.

The DMA output to an LSI-11 contained in the 11C03 forms a buffered data interface that uses the LSI-11 to service each serial line with character data while the VAX/VMS system and user programs continue with other processing.

The 11C03 support of asynchronous serial lines does not provide for modem control or software control of baud rates.

Features include:

- Automatic selection of block-mode DMA data output when the data block contains two or more characters
- A maximum total data output capacity - shared by all active terminal lines when input is inactive - of 20,000 characters a second. The maximum input capacity is 1000 characters a second, also shared by all active terminal lines when output is inactive.
- A timesharing diagnostic that provides assistance to service personnel while minimizing the disruption of 11C03 and/or other VAX terminal users
- Control of up to four 11C03 interfaces - a total of 32 serial line ports.

Price: $18,500

GraFIX™ Partner

SPD Number: X0.06
Operating System: MS™-DOS
Keywords: Personal computing
Graphics

GraFIX Partner is a graphics processor that lets the user create, edit, merge, and store graphic images. Those images can be graphs, charts, schematics, artwork, or any other images that need to be manipulated in some way.

GraFIX Partner has two execution modes. In BACKGROUND mode, the GraFIX Partner waits in memory (in the background) while the user runs any other software program. At any time the full functionality of the GraFIX Partner can be called forward to work on images currently present on the screen. In a STANDALONE mode (no other program running), GraFIX Partner is used as a full-featured drawing program.

Trademark: GraFIX is a trademark of Brightbill-Roberts and Company, Ltd.

MS is a trademark of Microsoft Corporation.

Price: $495

Graphwriter®

SPD Number: X0.07
Operating System: MS™-DOS
Keywords: Personal computing
Charts
Graphs
Presentation aids

Graphwriter is a business graphics package designed to produce superior quality presentation graphs. Developed by Graphic Communications, Inc., Graphwriter is menu-driven and provides many sophisticated features not usually found in low-cost graphics software.

Features:

- Menu-driven
- HELP messages available when needed
- Uses Rainbow function keys
- Screen prompts for various chart formats
- Wide selection of graph types including: bar, line-table, clustered, stacked or grouped bars, horizontal or vertical, range chart, segmented bars or columns, pie charts, combination pie-bar charts, bubble charts, Gantt, text/word charts and more
- User-selectable chart scaling, colors and fill patterns
- Multiple Hershey font styles in different sizes and colors
- Supports several different printers and plotters for output
- Reads and writes DIF and SYLK data files
- Compatible with Polaroid™ Palette™ system

Trademark: Graphwriter is a registered trademark of Graphic Communications, Inc.

MS is a trademark of Microsoft Corporation.

Polaroid is a trademark of Polaroid Corporation.

Palette is a trademark of Palette Systems, Inc.

Price: $595

LN01 Soft Font Library

SPD Number: A3.06
Operating System: VMS
Keywords: Presentation aids
Printing

Memory required: 256KB. Distribution medium: 9-track 1600 bpi magnetic tape.

This extensive set of character sets for the DIGITAL LN01 Laser Printer, serving a wide range of printing applications, includes three kits of proportional type: TEXT contains 8-, 10-, and 12-point character sizes; FLEX contains 9-, 11-, and 14-point character sizes; and DISPLAY contains 18-, 24-, and 36-point character sizes. The library contains portrait and landscape orientations for each font and two basic character sets for typefaces: a multinational character set and a basic publishing character set. Other kits are available that have been designed for specific applications.

DIGITAL distributes this product under license from Compugraphic Corporation.

Price: Available upon request

Micro/RSTS DECgraph-11, Version 1.2

SPD Number: 18.22
Operating System: Micro/RSTS
Keywords: Presentation aids
Printing

Distribution medium: RX50.

This interactive business graphics application enables the nontechnical user to create business graphs. Aided by picture-assisted menus, a user can input the data to be graphed, design the graph description, and combine them to create a graph file for display on the video terminal or printer. Thus, the data, design, and graph files are maintained indepen-

dently, permitting modified or new data files to be used with a previously designed graph. Graphs may be created and stored on a file for future use.

Micro/RSTS DECgraph-11 uses the capabilities of the graphics terminal and graphic-mode printers. On monochrome terminals, graphic images can be represented in black-and-white formats with the use of selected fill and line patterns. On color terminals or monitors, graphs may be designed with four colors chosen from a list of 14.

DATATRIEVE-11 may be accessed to establish the DECgraph-11 data file. The information contained in that file can then be graphed by DECgraph-11. A program may also be written to access other data files and to establish a DECgraph-11 data file.

Price: $595

Micro/RSX DECgraph-11, Version 1.2

SPD Number: 18.21
Operating System: Micro/RSX
Keywords: Presentation aids
Printing

Distribution medium: RX50.

This interactive business graphics application enables the nontechnical user to create business graphs. Aided by picture-assisted menus, a user can input the data to be graphed, design the graph description, and combine them to create a graph file for display on the video terminal or printer. Thus, the data, design, and graph files are maintained independently, permitting modified or new data files to be used with a previously designed graph. Graphs may be created and stored on a file for future use.

Micro/RSX DECgraph-11 uses the capabilities of the graphics terminals and graphic-mode printers. On monochrome terminals, graphic images can be represented in black-and-white formats with the use of selected fill and line patterns. On color terminals or monitors, graphs may be designed with four colors chosen from a list of 14.

DATATRIEVE-11 may be accessed to establish the DECgraph-11 data file; the information in that file can then be graphed by DECgraph-11. A program may also be written to access other data files and to establish a DECgraph-11 data file.

Price: $595

MicroVMS Workstation Software (VMS), Version 3.0

SPD Number: 28.00
Operating System: MicroVMS
Keywords: Graphics
Workstations
Windows
Application development

MicroVMS Workstation Software provides windowing and graphics support for VMS VAXstations. This includes VT220 and TK4014 emulation, a simple mouse-based human interface for window manipulation, and a graphics and windowing programming interface.

Features include:

- User Interface Service (UIS) provides a high-performance, device-independent, application programming interface.
- Support for the technical character set in VT220 emulation.
- Hardcopy Graphics Support allows the user to generate graphic metafiles and output them to numerous supported devices. Sixel, HP®-GL, ReGIS and Postscript output are supported. Supported devices include LA50, LA210, LA100, LN03, LCP01, LVP16, HP7475, HP7550, HP7580, Apple™ LaserWriter, and LASERGRAPHICS MPS-2000 with HP-GL option.
- Users can create, move, stack, and resize multiple windows.
- A set of demonstration programs that includes a basic graphic editor to create, save, and print graphic images.

Trademark: Apple is a trademark of Apple Computer, Inc.

HP is a registered trademark of Hewlett-Packard Company.

Price: $500

MS Chart™ – Microsoft® Applications for the VAXmate

SPD Number: X0.36
Operating System: MS™-DOS V3.10
Keywords: Presentation aids
Graphics
VAXmate

The MS Chart application can be installed on a VAXmate, MicroVAX, or VAX server. VAXmates attached to the server may then share a single copy of the application, providing the customer has purchased the appropriate license. This saves the inconvenience of loading the application off a floppy if no hard disk is present and assures each user of having the latest version of the application.

MS Chart inputs data from such products as Lotus 1-2-3™ or dBASE II® and dBASE III™ using DIF™, SYLK, or ASCII (SDF) formats to develop easily understood, presentation-quality charts. Many variations of pie, scatter, area, bar, column, hi-lo, line, and overlay charts are provided in 45 predesigned formats. Users are given the freedom to design their own format and save it for later use.

Charts can be annotated and edited to suit the user's needs. Text and arrows can be added; line patterns, fill patterns, fonts and font sizes can be modified. Charts are displayed in a "what you see is what you get" format. On-line HELP is provided, as well as facilities for analyzing data. Seven statistical functions are built in.

Price: $295

MS Flight Simulator™ – Microsoft® Applications for the VAXmate

SPD Number: X0.42
Operating System: MS™-DOS V3.10
Keywords: Game
VAXmate

The MS Flight Simulator is a very popular recreational package that simulates the experience of flying a Cessna 182. MS Flight Simulator lets you create up to 30 flight modes. You can take off and land at more than 80 airports. The weather or season may be altered to add other conditions the pilot may face. This is the same version that runs on the IBM® PC/AT, and is frequently used as a test of IBM compatibility.

Price: $700

Overhead Express™

SPD Number: X0.05
Operating System: MS™-DOS
Keywords: Personal computing
Graphics
Presentation aids

Overhead Express, developed by Business and Professional Software, Inc., is a software tool designed to help prepare professional-quality presentation transparencies using a Rainbow, DECmate II, or DECmate III personal computer.

Features:

- Menu-driven and easy to use
- Provides 12 standard template formats including bulleted lists, title pages, budgets, tables, and outlines
- Allows user to create custom templates with the custom editor
- Provides four typefaces (Classic, Modern, Popular, and Script) and five type sizes
- Includes special characters and symbols such as arrows, stars, and trademark symbols as well as international characters, boxes, and horizontal and vertical lines.
- Creates special effects such as shadowed text and boxes, shading, and inverse printing
- Printed output is near typeset quality.

Trademark: Overhead Express is a trademark of Business and Professional Software, Inc.

MS is a trademark of Microsoft Corporation.

Price: $195

PLOTLN™

SPD Number: A3.32
Operating System: VMS
Keywords: Personal computing
Graphics
Laser printer
Printing

PLOTLN includes a library of FORTRAN subroutines that can be called from any language that supports the VMS calling conventions. The routines, which produce graphics on the LN01 from a user-written program, have the same format and function as the subroutines com-

monly used with CalComp plotters. Software designed to output to CalComp plotters can output to the LN01 by using the /PENPLOT option of the PLOTLN Command Verb. PLOTLN does the following:

- Converts generic graphic display descriptions to the mosaics needed to produce graphic images on the LN01.
- Supports the conversion of ReGIS picture files into data files that produce equivalent pictures on the LN01.
- Allows any VMS programming language to produce graphics on the LN01 by calling the underlying PLOTLN subroutines. PLOTLN's call interface is directly compatible with the CalComp interface used for CAD/CAM applications.
- Supports the integration of text and graphics on a single page when used with a text editor that allows literal data to be included from a file.
- Allows a viewport size and location to be defined for each output display file. The graphic display automatically expands or reduces to fill up the defined viewport, allowing easy integration of the display into a page with text or other graphic images.
- Supports a metafile facility that allows a selected portion of an original picture to be independently sized and displayed.
- Allows any software that produces Base ReGIS or CalComp output to use the LN01 Page Printer as a graphics hard-copy device.
- Includes specially designed text fonts in four orientations and four type sizes, allowing text in different orientations to appear on the same page.

Trademark: PLOTLN is a trademark of Image Research Corporation.

DIGITAL distributes this software product under licenses from Image Research Corporation and Compugraphics Corporation.

Price: $3500

PLXY-11M, Version 1.3

SPD Number: 14.39
Operating System: RSX
Keywords: Mapping
Pre- and postprocessors
Printing

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02, RX02.

This package gives the RSX-11M user access to the plotting capabilities of the LXY graphics printer. The package consists of a library of FORTRAN-callable graphics subroutines, a postprocessing program to create a plot file, and a task to initiate the postprocessing task off line.

The PLXY-11M user writes FORTRAN application programs, using the graphics facilities provided by the PLXY-11M subroutine library. Those subroutines convert the user's graphics requests into a series of vectors stored on an intermediate (vector) file. Vector data from that file is sorted and formatted into LXY graphics printer plottable data (raster format) by the postprocessing program. The plottable data is stored in an intermediate file where the data can be subsequently transferred by way of a system utility to the LXY graphics printer. Output to the LXY graphics printer is directed through the standard LP11 line printer driver.

Facilities are provided to automatically queue postprocessing of the vector file by the user application program. Alternatively, the PLXY-11M MCR interface task accepts command strings to queue postprocessing of named files. Several files may be queued simultaneously by way of indirect command file control.

The PLXY-11M subroutine library includes routines for character and line drawing. As all operations are program controlled, either axis or both axes can be addressed in positive or negative incremental steps.

Price: Available upon request

PLXY-11M-PLUS and PLXY-11/RSTS, Version 1.3

SPD Number: 14.71
Operating System: RSTS, RSX
Keywords: Data conversion
Mapping
Pre- and postprocessors
Printing

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02, RX02.

These packages give the RSX-11M-PLUS or the RSTS/E user access to the plotting capabilities of the LXY graphics printer. Each package consists of a library of FORTRAN-callable graphics subroutines and a postprocessing program to create a plot file.

The PLXY-11M-PLUS or PLXY-11/RSTS user writes FORTRAN application programs, using the graphics facilities provided by the appropriate subroutine library. Those subroutines convert the user's graphics requests into a series of vectors stored on an intermediate (vector) file. Vector data from that file is sorted and formatted into LXY graphics printer plottable data (raster format) by the postprocessing program. The plottable data is stored in an intermediate file from which the data can be subsequently transferred by way of a system utility, such as PIP, to the LXY graphics printer. Output to the LXY graphics printer is directed through the standard LP11 line printer driver.

The PLXY-11M-PLUS and PLXY-11/RSTS subroutine libraries include routines for character and line drawing. As all operations are program controlled, either axis or both axes can be addressed in positive or negative incremental steps.

For the PLXY-11M-PLUS user, facilities are provided to automatically queue postprocessing of the vector file by the user application program. Alternatively, the PLXY-11M-PLUS MCR interface task accepts command strings to queue postprocessing of named files. Several files may be queued simultaneously by way of indirect command file control.

Refer to SPD 14.71 (PLXY-11M-PLUS) or SPD 14.16 (PLXY-11/RSTS) when requesting further information on these products from your local DIGITAL sales office.

Price: Available upon request

PLXY-11/RT, Version 1.3

SPD Number: 12.42
Operating System: RT-11
Keywords: Mapping
Pre- and postprocessors
Printing

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02, RX02.

This package gives the RT-11 user access to the plotting capabilities of the LXY graphics printer. The package consists of a library of FORTRAN-callable graphics subroutines and a postprocessing program to create a plot file.

The PLXY-11/RT user writes FORTRAN application programs, using the graphics facilities provided by the PLXY-11/RT subroutine library. Those subroutines convert the user's graphics requests into a series of vectors stored on an intermediate (vector) file. Vector data from that file is sorted and formatted into LXY graphics printer plottable data (raster format) by the postprocessing program. The plottable data is stored in an intermediate file where the data can be subsequently transferred by way of a system utility to the LXY graphics printer. Output to the LXY graphics printer is directed through the standard LP11 line printer driver.

The PLXY-11/RT subroutine library includes routines for character and line drawing. As all operations are program controlled, either axis or both axes can be addressed in positive or negative incremental steps.

Price: Available upon request

PLXY-11/VAX (Plot Package)

SPD Number: 25.42
Operating System: VMS
Keywords: Device drivers/handlers
Mapping
Pre- and postprocessors
Printing

Distribution media: RX01, TU58 DECtape II cartridge.

PLXY-11/VAX provides the VAX/VMS user with access to the plotting capabilities of the LXY graphics printer. The package consists of a library of FORTRAN-callable graphics subroutines and a postprocessing program to create a plot file.

The PLXY-11/VAX user writes FORTRAN application programs, using the graphics facilities provided by the PLXY-11/VAX subroutine library. Those subroutines convert the user's graphics requests into vectors stored on an intermediate (vector) file. Vector data from that file is sorted and formatted into LXY graphics printer plottable data (raster format) by the postprocessing program. That plottable data is stored in an intermediate file, where it can be subsequently transferred by a system utility to the LXY graphics printer. Output to the LXY graphics printer is directed through the standard LP11 line printer driver or terminal driver for serial line options.

The PLXY-11 subroutine library includes routines for character and line drawing. As all operations are program controlled, either axis or both axes can be addressed in positive or negative incremental steps.

Price: Available upon request

POLYGRAFIX

SPD Number: 26.14
Operating System: VMS
Keywords: Presentation aids
Statistics
Text management

Distribution media: RX01, TU58 DECtape II cartridge.

The five host-resident graphics packages that make up the POLYGRAFIX software package are written in FORTRAN and support a wide range of graphics applications on a GIGI (VK100) or a VT125 terminal.

- The ReGIS (Remote Graphics Instruction Set) Graphics Editor allows the user to create and edit pictures interactively on a GIGI or a VT125 terminal. The keypad-driven ReGIS Graphics Editor can generate ReGIS code for the terminal. The user can define or change

attributes, such as color, shading, writing patterns, text size, and direction. Pictures created by the Graphics Editor can be stored in files on the host system for the ReGIS Slide Projection System and ReGIS DEC-RITE.

- The ReGIS Slide Projection System allows the user to display existing ReGIS picture files. This system provides a method of using picture files in a manner that resembles a slide projector.
- The ReGIS Character Set Editor allows users to construct alternate character sets of up to 95 characters each. The character sets are stored in files on the host system and may be down-line loaded into the GIGI or VT125, VT240, or VT241's three alternate character sets. The package allows nontechnical users to create, load, and use character sets.
- ReGIS DEC-RITE (ReGIS Illustrated Text Editor) is an on-screen editor providing interactive text-attribute selection and optional final copy from a GIGI or a VT125 connected to an LA34-VA or an LA100 printer.
- The ReGIS Data Plotting Package performs interactive file and data manipulation for graphics plotting. The package allows the user to enter and edit data in a table and to draw predefined plots, such as bar graphs or line graphs, or to perform predefined statistical analysis.

Price: $1440 - $2400

PRO/NAPLPS

SPD Number: 40.43
Operating System: P/OS
Keywords: Communications
Graphics
Query facilities
Videotex
Personal computing

PRO/NAPLPS is a software application that enables a Professional computer to communicate directly with NAPLPS (North America Presentation Level Protocol Syntax) videotex host system, allowing the user to receive and display high-resolution monochrome or color graphics and text.

Features:

- Displays up to 8 colors from a palette of 256 colors
- Provides resolution of 768 horizontal pixels by 240 lines
- Supports both direct connect to host and auto-dial modems
- Automatically dials a remote host system from a phone book when used with auto-dial modem

- Supports DIGITAL's Telephone Management System (TMS) or Mini-Exchange when used with PRO/Communications
- Supports the following NAPLPS functions: Primary Character Set, Supplementary Character Set, Picture Description Instructions (PDIs), Mosiac Set, Macro Set Dynamically Redefinable Character Set (DRCS), and C0 and C1 control sets
- Provides a minimum of 4 Kbytes of object memory for macro definitions and DRCS characters

Price: $195

PRO/SIGHT, Version 1.0

SPD Number: 40.46
Operating System: P/OS
Keywords: CAD
Graphics
Integrated text and graphics
Menus
Mouse
Presentation aids
Personal computing

PRO/SIGHT is an object-oriented, interactive graphics editor that allows the user to create a variety of pictures ranging from simple organizational charts to complex images.

Users can draw with cursor keys, a mouse, or a digitizing tablet. A set of menus appear at the bottom of the screen. These menus allow the user to select colors, fill patterns, brush styles, text fonts, and standard shapes to include in the picture.

Price: $295

Rainbow ReGIS, Version 1.0, for Rainbow 100

SPD Number: A3.56
Operating System: CP/M®, MS™-DOS
Keywords: Personal computing
Graphics
ReGIS
VT240/VT241 compatibility

Rainbow ReGIS software gives the Rainbow 100 personal computer the ReGIS graphics capability of DIGITAL's VT240/VT241 video terminals. ReGIS provides commands for creating and manipulating graphics and text images, and controlling screen parameters. Rainbow ReGIS

images can use four colors or four shades of gray, green, or amber, depending on the video monitor type. Graphic objects can be enhanced by using filling and line patterns.

Used with the poly-TRM™ program of the poly-COM™ communications software, Rainbow ReGIS software allows a Rainbow 100 system to emulate VT240/VT241 ReGIS as a terminal to a host. This allows the user to access ReGIS programs running on a host computer system and to display the graphic images produced by those programs on the Rainbow screen.

Hard copies of screen images can be produced on an LA50 personal printer or LA100-PC letter quality printer. Everything that is displayed on the screen or just a portion of it can be printed by using the hard copy option of the ReGIS screen control command. The selected area of the screen can be output to a DIGITAL dot-matrix printer under program control.

Trademark: CP/M is a registered trademark of Digital Research, Inc.

poly-COM and poly-TRM are trademarks of Polygon Associates, Inc.

MS is a trademark of Microsoft Corporation.

Price: $175

ReGIS CAI Primer

SPD Number: 30.12
Operating System: RSTS, VMS
Keywords: Computer-aided instruction

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02, RX01, TU58 DECtape II cartridge.

This computer-assisted instruction course on the use of ReGIS, the Remote Graphics Instruction Set firmware, is resident in the GIGI graphics terminal (see SPD 30.10.00). All instruction is presented online through a GIGI terminal connected to a RSTS/E, a VAX/VMS, or a TOPS-10 operating system host.

The course is composed of seven instructional modules that explain the GIGI's firmware graphics language, the Remote Graphics Instruction Set (ReGIS). Those modules cover the specification of screen and writing attributes as well as basic graphics entities, such as points, circles, vectors (lines), text, and curves. The course takes between six and eight hours to complete.

Price: Available upon request

ReGIS (Remote Graphics Instruction Set) Software

SPD Number: 26.15
Operating System: VMS
Keywords: Graphics
ReGIS
Presentation aids

Distribution media: RX01, TU58 DECtape II cartridge.

The ReGIS host-resident graphics packages, written in FORTRAN, support a range of graphics applications on a GIGI (VK100), VT125, VT240, or VT241 terminal.

- The ReGIS Graphics Editor allows users to create and edit pictures interactively. The keypad-driven ReGIS Graphics Editor generates ReGIS code for the terminal. The user can define or change attributes, such as color, shading, writing patterns, text size, and direction. Pictures created by the Graphics Editor can be stored in files on the host system for use by the ReGIS Slide Projection System.
- The ReGIS Slide Projection System allows users to display ReGIS picture files. This system provides a method of using picture files in a manner that resembles a slide projector.
- The ReGIS Character Set Editor allows users to construct alternate character sets of up to 95 characters each. The character sets are stored in files on the host system and may be down-line loaded into the GIGI or the VT125, VT240, or VT241's three alternate character sets. The package allows nontechnical users to create, load, and use character sets.

Price: Available upon request

RGL (ReGIS Graphics Library)

SPD Number: 25.62
Operating System: VMS
Keywords: ReGIS
Architecture
Mechanical engineering
Presentation aids

Distribution media: RX01, TU58 DECtape II cartridge.

This collection of subroutines conforms to the standard VAX/VMS calling interface and is designed to support the graphics capabilities of the VT125 terminal. RGL is written in FORTRAN, executes under the VAX/VMS operating system, and features picture-drawing and data-plotting capabilities.

Price: $3500

RGL/11, Version 1.1

SPD Number: 14.62
Operating System: RSX, RT-11
Keywords: Mapping

Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RL01, RL02, RX01, RX02.

This FORTRAN-callable graphics library is for RT-11 Single-Job (SJ), Foreground/Background (FB), and XM monitors and for RSX-11M operating systems supporting the VT125. RGL/11 is a subset of and upwards-compatible with the VAX ReGIS Graphics Library product. RGL/11 features picture drawing and data plotting facilities. RGL/11 replaces, and is compatible with, RGL/FEP.

Price: Available upon request

RSTS/E DECgraph-11, Version 1.2

SPD Number: 15.24
Operating System: RSTS
Keywords: Presentation aids
Printing

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02.

This interactive business graphics application enables the nontechnical user to create business graphs. Aided by picture-assisted menus, a user can input the data to be graphed, design the graph description, and combine them to create a graph file for display on the video terminal or printer. Thus, the data, design, and graph files are maintained independently, permitting modified or new data files to be used with a previously designed graph. Graphs may be created and stored on file for future use.

RSTS/E DECgraph-11 uses the capabilities of graphics terminals and graphics-mode printers. On monochrome terminals, graphics images can be represented in black-and-white formats with the use of selected fill and line patterns. On color terminals or monitors, graphs may be designed with four colors chosen from a list of 14.

DATATRIEVE-11 may be accessed to establish a RSTS/E DECgraph-11 data file; the information contained in that file can then be graphed by RSTS/E DECgraph-11. A program may also be written to access other data files and to establish a RSTS/E DECgraph-11 data file.

A version of this product is available for the VAX computer.

Price: Available upon request

RSX-11M VIGL, Version 1.0

SPD Number: 14.19
Operating System: RSX
Keywords: Data conversion

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL01, RL02.

This library of FORTRAN-callable graphics subroutines provides the RSX-11M user with access to the graphics capabilities of the VS(V)11 graphics subsystem. RSX-11M VIGL graphics facilities provided by the VIGL subroutine library allow the user to create FORTRAN applications programs. The subroutines convert graphics requests into display lists containing VS(V)11-specific graphics instructions and use the VS(V)11 driver to send those display lists to the VS(V)11 graphics subsystem.

Price: Available upon request

RSX-11M-PLUS DECgraph-11, Version 1.2

SPD Number: 13.26
Operating System: RSX
Keywords: Presentation aids
Printing

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02.

This interactive business graphics application enables the nontechnical user to create business graphs. Aided by picture-assisted menus, a user can input the data to be graphed, design the graph description, and combine them to create a graph file for display on the video terminal or printer. Thus, the data, design, and graph files are maintained independently, permitting modified or new data files to be used with a previously designed graph. Graphs may be created and stored on a file for future use.

RSX-11M-PLUS DECgraph-11 uses the capabilities of the graphics terminals and graphic-mode printers. On monochrome terminals, graphic images can be represented in black-and-white formats with the use of selected fill and line patterns. On color terminals or monitors, graphs may be designed with four colors chosen from a list of 14.

DATATRIEVE-11 may be accessed to establish the DECgraph-11 data file; the information in that file can then be graphed by DECgraph-11. A program may also be written to access other data files and to establish a DECgraph-11 data file.

Refer to SPD 13.26.00 when requesting further information on this product from your local DIGITAL sales office.

Price: $900

RSX-11/PROVUE, Version 2.0

SPD Number: 14.33
Operating System: RSX
Keywords: Asynchronous communication
Real time

Distribution media: 9-track 800/1600 bpi magnetic tape, RL01, RL02.

This color graphics package can be linked dynamically to any real-time process to diagrammatically represent the status of that process. Either local or remote clusters can control up to four VS(V)11 color displays with keyboards and joysticks. Up to four remote clusters can be connected to the main CPU by way of asynchronous serial communications lines running at speeds up to 9600 baud or synchronous serial communications lines running at speeds of 56KB. A maximum of four VS11 color displays can be connected locally to the host computer's UNIBUS or Q-BUS. The PROVUE subsystem supports up to 20 color display stations, depending on the host processor being used.

The microprocessor-based remote clusters have sufficient memory available to store up to four character sets, each of 128 characters, and eight pictures at any time. Thus, they are more quickly displayable than are those retrieved from the host computer disk storage and received through communication lines.

Each remote cluster system contains a TU58 that loads the remote cluster software system at power-up. The host software stores and retrieves picture information in both source and PROVUE form, converts that information from source to PROVUE form, and serves as the request interface between the display stations and the application tasks and vice versa.

A library of subroutines allows the application software to send messages to update specifically designated dynamic fields wherever they are displayed in the subsystem. The PROVUE subsystem ensures that the message is sent to all screens on which that dynamic field is displayed and converts the data to the format(s) required at each location on each screen.

Messages can also be sent back to the application task in the host from input generated at the subsystem keyboards.

The slave software manages the picture and character set buffers, the dynamic display and update of pictures according to messages received from the host software, and the control of the keyboards for the cluster.

Additionally, that software controls the switchover between the PROVUE Dynamic System and the PROVUE On-Line Picture Editing System, where appropriate.

The remote slave software operates under RSX-11S. The host software operates under RSX-11M.

Price: $3125 - $7250

ULTRIX-32w Workstation Software, Version 1.0

SPD Number: 28.22
Operating System: ULTRIX-32m
Keywords: Graphics
Workstations
Windows
Application development
Mouse

ULTRIX-32w is a software subsystem for the VAXstation II and VAXstation II/GPX workstations. Its architecture enables the user to access many levels of the workstation hardware for application development. Depending upon the needs in terms of performance and functional requirements, the user can interface an application directly to the driver, the QIL (low-level graphics library), the Window Server, or the GKS module.

APPLICATION -> GKS -> Window Server -> QIL -> DRIVER -> HARDWARE

ULTRIX-32w windowing package is based on MIT's X-Window software.

Features include:

- ULTRIX-32w Window Manager - multiple viewports, mouse, pop-up menus, HELP files.
- VT102 and TK4014 terminal emulation
- Window Server - applications interface (XLIB) library.
- Remote Host Window Server support - provides the capability to open windows on other hosts
- QDSS Interface Library (QIL) - low-level, high-performance graphics and text programming interface.

ULTRIX-32w supports GKS/0b implementation of the GKS graphics standard library. The ULTRIX-32m operating system has BSD 4.3 compatibility and AT&T™ System V source code compatibility.

Trademark: AT&T is a trademark of American Telephone and Telegraph Company.

Price: $1,000

VAX GKS (Graphics Kernel System) Version 2.0

SPD Number: 26.20
Operating System: MicroVMS, VMS
Keywords: Workstations
Development tools
Application development

VAX GKS V2.0 conforms to the American National Standards Institute (ANSI) and International Standards Organization (ISO) GKS standard for two-dimensional, device-independent graphics. GKS V2.0 meets level 2b of the GKS standard which provides full output, including workstation-independent segment storage (level 2) and synchronous input (level b) capabilities.

VAX GKS is a development tool which enables the user to create graphics programs which are portable from a single user VAXstation to a timesharing host that supports a wide variety of graphic terminals and hardcopy devices. Virtually any member of the VAX family can be picked for either the development of the application or as the target system.

Features:

- User-defined working coordinate system (world coordinates) in whatever unit of measurement is most convenient (miles, inches, etc.)
- Window and viewport capabilities for controlling size and position of images. Multiple views of the same image can be displayed on separate display surfaces, all from the same application.
- Basic drawing primitives include: Polyline, Polymarker, Fill Area, Cell Array, and Text. The set of attributes includes: line type, line width, and color.
- Segment capabilities allow the user to create an object and manipulate it interactively.
- Physical input from keyboard, mouse, or tablet. Synchronous input from logical input devices such as: locator, stroke, valuator, choice, string, and pick.
- GKS interface to sequential files; the ISO suggested GKS Metafile for filing graphical information.
- Support for a wide variety of graphic devices and the ability to develop additional graphic device handlers.

Price: $1,200 - $18,000

VAX-11/PROVUE

SPD Number: 25.84
Operating System: VMS
Keywords: Mapping
Presentation aids

This intelligent multiple-display control system for VAX/VMS systems allows both local- and remote-display stations. This complete package of hardware and software enables the user to build pictures and to control their display to reflect the status of any part of the process. That display control can be effected by the user's application programs or from any of the associated system keyboards. Built-in facilities allow operator interaction with the application system to acknowledge messages and input data to control the user process being monitored and displayed.

Price: $3570 - $8990

VIGL (VS(V)11 Interactive Graphics Library)

SPD Number: 25.94
Operating System: VMS
Keywords: Application development
Programming tools

This library of FORTRAN-callable graphics subroutines provides access to the graphics capabilities of the VS(V)11 graphics subsystem. VAX-11 VIGL graphics facilities, provided by the VIGL subroutine library, allow the user to create FORTRAN applications programs. The subroutines convert graphics requests into display lists containing VS(V)11-specific graphics instructions. The subroutines use the VS(V)11 Driver to send those display lists to the VS(V)11 graphics subsystem.

Price: $2500 - $4250

Information Management

VAX Information Management products provide the most integrated, complete, and flexible solutions offered today for managing information. These products are based on a method of design that ensures products an extraordinary amount of compatibility, integrity, and potential for growth.

Our products work together and within the VMS computing environment to reduce special coding and complicated interfaces. We provide a choice of two powerful database management systems, CODASYL-compliant or relational.

The VAX Information Management products run on the entire VAX family of processors - from desktop to data center - with no need to compile, reprogram, or retrain personnel.

Our database management systems take advantage of our advanced networking facilities, which provide full remote read/write access to databases in the same DECnet network. In addition, transparent read access to selected IBM® databases from a VAX is made easy for both end users and programmers.

Integration with the VMS Common Language Capability and Programmer Productivity tools allows for the development of applications with unprecedented ease and speed.

Fourth generation language products complete the set, providing both end-user information management and comprehensive application generation capabilities.

ADE/RSTS: Information Management for Office Professionals

SPD Number: 13.11
Operating System: RSTS
Keywords: Application development
Information management
Programming tools
Report generator

Distribution media: 9-track 800/1600 bpi magnetic tape, RL02, RX50.

ADE is specifically designed to help managers, administrative and clerical personnel, and other office professionals manage their own data. ADE users can create and manage information files and produce reports. An on-line tutorial makes ADE easy to learn, and extensive HELP messages and a self-prompting command structure make ADE easy to use. ADE allows users to produce and use simple applications without learning programming techniques or languages.

A version of this product is available for the VAX computer.

Price: Available upon request

A-to-Z Base System for MicroPDP-11, Version 2.0

SPD Number: 18.16
Operating System: MicroRSX
Keywords: A-to-Z
Application integration
Flow control processor
Menu manager
Multiuser base system

The A-to-Z Base System for MicroPDP-11 is a user-installable multiuser base system which will support up to four concurrent users with the MicroPDP-11/23, up to ten concurrent users with the MicroPDP-11/73, and up to twelve concurrent users with the MicroPDP-11/83. The A-to-Z Base System for MicroPDP-11 is required to use any of the A-to-Z layered applications.

The A-to-Z Base System for MicroPDP-11 includes menu-driven system management functions as well as the ability to install or remove Micro/RSX applications. The menu manager and flow control processor insulate the end user from the system-level interface without isolating the developer or system manager from the functions available at Micro/RSX command level.

The A-to-Z Base System for MicroPDP-11 includes the Micro/RSX operating system software and license, as well as the right to use Micro/RSX DIBOL programs on the system. The Micro/RSX docu-

mentation option, Micro/RSX DIBOL distribution option, and Micro/RSX DIBOL documentation option are available as separate products.

Features:

- Predefined user accounts with defined access privilege
- Separate System Management and Software Development accounts
- Menu selections by keyword or arrow keys
- Friendly defaults throughout the system
- Interrupt, Exit, Cancel, and HELP function keys
- Menu-driven automated account backup
- Lock or unlock user area for individual area security
- Index listing of files by type
- Simple file transfer from other accounts
- Common application installation procedures for all additional software packages
- Micro/RSX features available as privileged user
- Menu-driven system for selective BACKUP and RESTORE capabilities
- Menu-driven disk and user management

Price: $995

A-to-Z Base System for UNIBUS PDP-11, Version 2.0

SPD Number: 13.29
Operating System: RSX-11M-PLUS
Keywords: A-to-Z
Application integration
Flow control processor
Menu manager
Multiuser base system

The A-to-Z Base System for UNIBUS PDP-11 is a multiuser menu and system management system for use on UNIBUS PDP-11 systems running the RSX-11M-PLUS operating system. The A-to-Z Base System for UNIBUS PDP-11 includes menu-driven system management functions as well as the A-to-Z menu facility and flow control processor, which insulate the end user from the system level interface without isolating the developer or system manager from the functions available at the operating system level.

The A-to-Z Base System for UNIBUS PDP-11 is a layered product on RSX-11M-PLUS and requires the RSX-11M-PLUS operating system as prerequisite software. The A-to-Z Base System for UNIBUS PDP-11 is required to use any of the A-to-Z layered applications.

Price: $995

A-to-Z Data Inquiry for PDP-11, Version 1.5

SPD Number: 18.17
Operating System: RSX, MicroRSX
Keywords: A-to-Z
Database management
Office systems

A-to-Z Data Inquiry is designed to create impromptu reports and terminal queries from existing data files. Through the use of English language-like commands, a novice can design the desired output without the need for programming.

A-to-Z Data Inquiry uses dictionaries to describe data files. Logical field names assigned to each field are used with A-to-Z Data Inquiry commands to extract the desired data.

A-to-Z Data Inquiry also provides the user with a simplified dictionary build and data entry facility. Using this feature, the user is able to describe his/her own dictionary and can add, delete, and modify data in the user's file designated by that dictionary.

Features:

- Overlaid field description redefines physical areas in the file
- Data files can have multiple dictionaries, which define the file in various formats for different users
- Supports the A-to-Z Integrated System Function Keys
- Creates graph data files for A-to-Z Business Graphics
- Creates List Processing documents for A-to-Z Word Processing
- Provides data reports which can be used by other A-to-Z applications
- Allows indexed or sequential file access methods
- Automatically calculates beginning and ending locations of fields within the dictionary
- Allows entry of optional edit formats for numeric data fields
- Generates data entry prompts automatically from the dictionary definition
- Validates numeric fields
- Enables change and/or deletion of existing records

- Provides multiple screens automatically when more than 19 fields are to be entered
- Marks key fields on the screen for clarity

Price: $995

DATATRIEVE-11, Version 3.1

SPD Number: 12.48
Operating System: RSTS, RSX
Keywords: Database management
File management
Query facilities
Report generator
Dictionary

Distribution media: 9-track 800/1600 bpi magnetic tape, RK06, RK07, RL01, RL02.

This interactive query, report, and data maintenance system for the less sophisticated computer user is available on the RSTS/E, RSX-11M, and RSX-11M-PLUS operating systems. DATATRIEVE-11 uses RMS-11K record management services to access data contained in disk files of sequential, indexed, or relative organization. DATATRIEVE-11 provides facilities for selective data retrieval, sorting, formatting, updating, and report generation without the need for programming.

Record and domain (file) definitions entered in DATATRIEVE-11 are stored in data dictionaries shared by DATATRIEVE-11 users. Data dictionaries can also be used to store frequently used sequences of commands to be recalled and processed later. Commands are provided to list the contents of the data dictionary, to delete entries, and to control access to individual entries in the data dictionary. A utility is provided to compress the data dictionary file.

DATATRIEVE-11 enables the user to define domains that cross RMS file definitions and subset record definitions. A distributed server allows remote systems connected through DECnet, transparent access to DATATRIEVE domains on the user's system.

A remote Call Interface allows the user to write programs in COBOL, BASIC, or FORTRAN to access remote DATATRIEVE domains.

DATATRIEVE-11 provides the Application Design Tool (ADT) to assist the novice user in creating domain and record definitions. The ADT uses interactive dialog to guide the user through the data definition process. The ADT creates an indirect command file that is then processed to update the DATATRIEVE Data Dictionary.

A version of this product is available for the VAX computer.

Price: $1200 - $3000

DATATRIEVE-11/IAS, Version 3.0

SPD Number: 12.69
Operating System: IAS
Keywords: Database management
Query facilities
Information management
Report generator

Distribution media: 9-track 800/1600 bpi magnetic tape, RL02.

This interactive query, report, and data maintenance system for the less sophisticated computer user uses the RMS-11 record management services to access data contained in disk files of sequential, indexed, or relative organization. DATATRIEVE-11/IAS provides facilities for selective data retrieval, sorting, formatting, updating, and report generation without the need for programming.

Record and domain (file) definitions entered in DATATRIEVE-11/IAS are stored in data dictionaries shared by DATATRIEVE-11/IAS users. Data dictionaries can also be used to store frequently used sequences of commands to be recalled and processed later. Commands are provided to list the contents of the data dictionary, to delete entries, and to control access to individual entries in the data dictionary. A utility is provided to compress the data dictionary file.

DATATRIEVE-11/IAS enables the user to define domains that cross RMS file definitions and subset record definitions and provides the Application Design Tool (ADT) to assist the novice user in creating domain and record definitions. The ADT uses interactive dialog to guide the user through the data definition process, creating an indirect command file that is then processed to update the DATATRIEVE Data Dictionary.

The DATATRIEVE-11/IAS report writer provides easy-to-use commands to control report functions. DATATRIEVE-11/IAS uses a set of English-like commands for data retrieval, modification, and display. Prompting is automatic for both command and data entry.

DATATRIEVE-11/IAS provides a full set of arithmetic operators (addition, subtraction, multiplication, division, and negation), a set of statistical operators (total, average, maximum, minimum, and count), and automatic conversion between data types used in the FORTRAN, COBOL, DIBOL, and BASIC-PLUS-2 languages.

DATATRIEVE-11/IAS provides data encoding, decoding, and input validation capabilities through tables stored in the data dictionary. The user can also check data validity by storing validation criteria in the record definition.

A version of this product is available for the VAX computer.

Price: Available upon request

dBASE II®

SPD Number: A3.29
Operating System: CP/M®, MS™-DOS
Keywords: Database management
Query facilities
Report generator

dBASE II is a relational database management system which runs on the Rainbow 100 personal computer under the CP/M-86/80 or MS-DOS operating systems. dBASE II enables the user to create database systems containing one or more database files. These database files are composed of records, which are themselves composed of fields of data.

dBASE II uses common English commands to create databases, append or delete records within the database, sort the records within a database, and edit or modify the data contained within the records. Databases may be copied in whole or in part. Existing databases may be merged to form more complex databases. The structure of an existing database may be modified without having to re-enter the data from the keyboard. (The data is first saved in a temporary backup file, then recalled.) Data may be written to or appended from non-dBASE II files using either a standard "System Data Format" or user-specified delimiters.

Database files may be indexed on one or more key fields. These indices may be used to rapidly locate specific records within the database, or to display the entire database sorted on a specific key.

dBASE II includes a report generator which enables the user to print data in a specified format. The report generator tabulates data using page headings and/or column headings. Subtotals and totals are available where appropriate.

This product runs both on the DECmate and Rainbow operating systems.

Price: $495

dBASE III™, MS™-DOS

SPD Number: A4.62
Operating System: MS-DOS
Keywords: Personal computing
Database management
Relational database
Report generator

dBASE III is a relational database management system which runs on the MS-DOS operating system. dBASE III enables the user to create a database system composed of one or more database files. These database files are composed of records, which are composed of fields of data. dBASE III is a more powerful and enhanced version of dBASE II™.

dBASE III uses common English commands to create databases, to append or delete records within the database, to sort the records within a database, and to edit or modify the data contained within the records. Databases may be copied in whole or in part. Existing databases may be merged to form more complex databases. The structure of an existing database may be modified without having to re-enter the data from the keyboard. Data may be written to or appended from non-dBASE III files using either a standard "System Data Format" or user-specified delimiters. There is a special conversion program in dBASE III to convert dBASE II files to dBASE III.

Trademark: dBASE II and dBASE III are trademarks of ASHTON-TATE.

MS is a trademark of Microsoft Corporation.

Price: $695

DBMS-11, Version 2.1

SPD Number: 12.66
Operating System: IAS, RSX
Keywords: Compilers
Database management
Information management
Language enhancers

An implementation of the 1973 and 1975 CODASYL Database Language Specifications, DBMS-11 provides database facilities for PDP-11 COBOL and PDP-11 FORTRAN-77 programs and any other DIGITAL host language that supports a CALL statement or equivalent, such as FORTRAN IV, BASIC-PLUS-2, and MACRO-11.

DBMS-11 provides separate language facilities for the description and manipulation of data. That separation of data description provides for the integration of all data and data relations into a database that is common to all application programs sharing the data.

A version of this product is available for the VAX computer.

Price: Available upon request

DECmate DBMS

SPD Number: 60.14
Operating System: CP/M®
Keywords: Personal computing
Database management
Data collection
Report generator

DECmate DBMS is a relational database management system for the DECmate II CP/M, Version 2.2 operating system that runs on the DECmate. It provides a method for defining, storing, retrieving, and manipulating data using relational operations. With DECmate DBMS, both novice and experienced users can quickly organize and use large amounts of data through English language-like commands. No programming knowledge is required to take advantage of DECmate DBMS's data definition and manipulation language.

Database specifications:

- Maximum number of relations in a database: 40
- Maximum number of attributes in a database: 400 (over all relations)
- Maximum number of characters in a row: 1530
- Maximum number of rows in a relation: over 2 billion

NOTE

The above specifications are limited only by mass storage availability; a database may not extend over multiple volumes or diskettes. Maximum space available for a database is 386 Kbytes on an RX50 diskette and 8176 Kbytes on an RD51 hard disk.

Data types are date, dollar, integer, real, text, and time.

Features:

- Data Dictionary - The DECmate DBMS Data Dictionary allows definition of database attributes and relations, rules for attribute verification, and passwords for data security at both the database and relation level. The data dictionary also allows inquiries regarding database structure.

- Database Query - The DECmate DBMS query capability allows data to be selectively retrieved from a database, and displayed on the monitor, printed on a printer, or stored in an ASCII file. Selection criteria can be: contains, starts with, equals, less than, greater than, less than or equal, greater than or equal, entry exists, entry doesn't exist.
- Report Writer - Reports may be specified for any relation in the database, with header, footer, and detail lines.
- Data Input - Data may be input in the database in free form, with prompts, through a user-defined form, from a formatted or unformatted ASCII file, or from a SYLK formatted ASCII file.
- Editing Data - All occurrences of a data value within a database can be changed, or rows of a relation can be selectively edited.
- Data Manipulation - Five relational commands provide data manipulation capabilities: PROJECT, JOIN, UNION, INTERSECT, and SUBTRACT.
- Data Security - Passwords may be specified for a database, or for selected relations within a database.
- On-Line HELP and Prompting - HELP text and prompts provide a guide for the inexperienced user.

Trademark: CP/M is a registered trademark of Digital Research, Inc.

Price: $495

FMS-11/IAS, Version 1.0

SPD Number: 12.32
Operating System: IAS
Keywords: Application development
Database management
Forms management
Menu handlers
Query facilities

Distribution media: 9-track 800/1600 bpi magnetic tape, RL02.

This forms-oriented video I/O management system for the IAS operating system functions as an independent software front end that logically off-loads the complexities of interactive video I/O management from the application program. FMS-11/IAS can be used as a general-purpose manager of operator I/O or as a front end in traditional source data entry applications. Possible FMS-11/IAS applications range from database inquiry/response/update to periodic displays of the status of a real-time process or accepting control information from the operator for the process.

Call statement, high-level language interfaces are provided for applications written in FORTRAN IV/IAS-RSX, FORTRAN-77/IAS, BASIC-PLUS-2 for IAS, and COBOL as well as in MACRO-11 assembly language. FMS-11/IAS is equally effective implementing applications with question-and-answer, menu, or fill-in-the-blank forms.

Forms defined using FMS-11/IAS can use the following features of DIGITAL's VT100 terminal: reverse video, bold, underlined, and blinking characters; 132-column lines; jump and smooth scrolling; and split and reverse screens.

FMS-11/IAS consists of the following software components:

- FED (Form Editor) - Used by the application developer to create and modify video forms by typing them on the screen as they are to appear to the application user
- FUT (Form Utility) - A multifunction utility program for manipulating files of FMS-11/IAS form descriptions
- FDV (Form Driver) - A reentrant subroutine called from application programs to control screen processing.

Price: Available upon request

Micro/RSX DATATRIEVE-11, Version 3.1

SPD Number: 18.15
Operating System: Micro/RSX
Keywords: Database management
Dictionary
Query facilities
Report generator

Distribution medium: RX50.

This interactive query, report, and data maintenance system for the less sophisticated computer user uses the RMS-11 record management services to access data in disk files of sequential, indexed, or relative organization. Micro/RSX DATATRIEVE-11 provides facilities for selective data retrieval, sorting, formatting, updating, and report generation without the need for programming.

Record and domain (file) definitions entered in Micro/RSX DATATRIEVE-11 are stored in data dictionaries shared by Micro/RSX DATATRIEVE-11 users. Data dictionaries can also be used to store frequently used sequences of commands to be recalled and processed later. Commands are provided to list the contents of the data dictionary, to delete entries, and to control access to individual entries in the data dictionary.

Micro/RSX DATATRIEVE-11 provides the Application Design Tool (ADT) to assist the novice user in creating domain and record definitions. The ADT uses an interactive dialog technique to guide the user through the data definition process and creates an indirect command file that updates the Micro/RSX DATATRIEVE-11 data dictionary.

The Micro/RSX DATATRIEVE-11 report writer provides easy-to-use commands to control report name, date, and page numbering and width and length; detail line specifications; and multiple report sections and control break specification with automatic totaling at any level.

Micro/RSX DATATRIEVE-11 uses a set of English-like commands for data retrieval, modification, and display. Prompting is automatic for both command and data entry.

In addition to the simple data-manipulation commands, more complex commands, such as REPEAT, BEGIN-END, and IF-THEN-ELSE, are available for the advanced user.

Price: $1200

PDP-11 DATATRIEVE/VAX

SPD Number: 25.14
Operating System: VMS
Keywords: Database management
Query facilities
Report generator
Text management

Distribution media: RX01, TU58 DECtape II cartridge.

This interactive query, report generation, and data maintenance system runs under the VAX/VMS operating system in conjunction with VAX-11 RSX. Users of this self-teaching system need little computer experience.

DATATRIEVE uses the RMS record management services to access data in disk files of sequential, indexed, or relative organization and provides selective data retrieval, sorting, formatting, updating, and report generation without the need for programming. Record and domain (file) definitions entered in DATATRIEVE are stored in data dictionaries shared by DATATRIEVE users. The dictionaries store frequently used sequences of commands to be recalled and processed later. Additional commands list the contents of the data dictionary, delete entries, and control access to individual entries in the data dictionary. A dictionary compression utility cleans up the data dictionary index file.

DATATRIEVE enables the user to define domains that cross RMS file definitions and subset record definitions. DATATRIEVE provides an Application Design Tool (ADT) to assist the novice in creating domain

and record definitions. The ADT uses an interactive dialog technique to guide the user through data definition and creates an indirect command file that is then processed to update the DATATRIEVE data dictionary.

The DATATRIEVE report writer provides easy-to-use commands to control report name, date, and page numbering; page width and length specifications; detail line specifications; multiple control break specifications with automatic totaling at any level; and multiple report sections. DATATRIEVE report commands can be freely intermixed with other DATATRIEVE commands.

DATATRIEVE uses simple English-like commands for data retrieval, modification, and display. Prompting is automatic for both command and data entry.

Price: $4200

PFS®:FILE

SPD Number: A2.98
Operating System: MS™-DOS
Keywords: Database management
File management
Forms

PFS:FILE is used to store and retrieve information. It lets the user record information faster and organize it more efficiently than by conventional filing systems. Users can design forms to meet their own specific needs. PFS:REPORT works in conjunction with PFS:FILE to create and print tabular reports in a number of different and user-definable formats.

Features:

- Users can design the file format for creating forms and storing information such as personnel records, patient medical records or customer credit data.
- Users can enter information in any order and retrieve it when needed.
- Users can store up to 2500 simple forms with compact diskette storage.
- Users can retrieve stored information in a variety of ways: exact match, partial match, numeric range, complex but common characteristic match, "in-string" match and any combination of the above.

Trademark: PFS is a registered trademark of Software Publishing Corporation.

MS is a trademark of Microsoft Corporation.

Price: $140

PFS®:REPORT

SPD Number: A3.00
Operating System: MS™-DOS
Keywords: Personal computing
Database management
Math functions
Report generator

PFS:REPORT works in conjunction with PFS:FILE to create and print tabular reports in a number of different and user-definable formats.

Features:

- Generates up to eight report formats with 20-column capacity for each file
- Sorts stored information by keywords, alphabetically or numerically, and printed according to a predefined report format
- Performs calculations on numerical data and provides totals, subtotals, averages, subaverages, counts and subcounts in a column
- Allows modifications of previously defined reports plus report headings
- Prints reports on single sheets as well as continuous forms
- Reports may be viewed on the screen.

Trademark: PFS is a registered trademark of Software Publishing Company.

MS is a trademark of Microsoft Corporation.

Price: $140

PRO/DATATRIEVE, Version 2.0

SPD Number: 40.26
Operating System: P/OS
Keywords: Application development
Command interface
Dictionary
Data management
Information management
Menus
Query facilities
Report generator
Statistics
Personal computing

PRO/DATATRIEVE is an easy-to-use interactive query, report, and data maintenance system. PRO/DATATRIEVE provides facilities for selective data retrieval, sorting, formatting, updating and generating reports without the need for programming on the Professional hard disk system. PRO/DATATRIEVE, Version 2.0, includes a callable DATATRIEVE task image (PROCALDTR.TSK). Users who have PRO/Tool Kit, Version 2.0, or Professional Host Tool Kit, Version 2.0, can call PRO/DATATRIEVE from a Tool Kit language.

PRO/DATATRIEVE provides an Application Design Tool (ADT) that helps the user create domain and record definitions. ADT uses an interactive dialog technique to guide the user through the data definition process. ADT creates an indirect command file that is then processed to store the definitions in the DATATRIEVE Data Dictionary.

PRO/DATATRIEVE recognizes and is directed by the following function keys: HELP, EXIT, MAIN SCREEN, CANCEL, DO, INTERRUPT/DO, PRINT SCREEN, and HOLD SCREEN. It uses English language-like commands to direct data retrieval, modification and display. Prompting is automatic for both command and data entry.

Price: $495

PRO/RDT, Version 1.0

SPD Number: 40.44
Operating System: P/OS
Keywords: Database management
File transfer
Information management
Menus
Report generator
Personal computing

PRO/RDT is an information management tool that works with PRO/DATATRIEVE, Version 2.0, to let the user extract selected information from a DATATRIEVE domain on a remote host. This host can be another Professional, VAX, DECSYSTEM-20, or PDP-11 system. The remote host must have DECnet or PRO/DECnet and a DATATRIEVE Distributed Data Management Facility (DDMF) task installed. PRO/DDMF, which is packaged with the PRO/RDT application, lets the Professional be a remote host for other PRO, VAX, DECSYSTEM-20 or PDP-11 systems. PRO/RDT uses DECnet as the transfer medium. DATATRIEVE and its protocols control the information transfer.

PRO/RDT is menu-driven and contains extensive on-line HELP. PRO/RDT menus prompt the user for all information needed to create and process an abstract description, or EXTRACT. An EXTRACT identifies the computer system the user wants to access and the DATATRIEVE data to be retrieved. This information includes system node name, user name, password, dictionary, and domain name. The user is also prompted for the name of the dictionary domain and data file where the extracted information will be stored.

Price: $495

QUILL, Version 2.0

SPD Number: 12.55
Operating System: CTS-300
Keywords: Database management
Dictionary
List processing
Word processing
Report generator
Text management

Distribution media: RK07, RL01, RL02, RX02.

This system creates impromptu reports and terminal queries from existing data files. Through the use of English-like commands, a novice user can design the desired output without the need for programming.

QUILL has an additional output command that creates a list document (file) for the word processing application DECtype-300. By issuing commands similar to making a query, QUILL creates the list document on disk, which can be accessed by DECtype's list processing facility or editor.

QUILL uses dictionaries to describe data files. Logical field names assigned to each field are used with QUILL's commands to extract the desired data. QUILL's dictionaries support CTS-300 fixed-length, sequential, and ISAM file structures.

Price: Available upon request

R.BASE.4000™

SPD Number: 60.26
Operating System: MS™-DOS
Keywords: Personal computing
Data collection
Database management
Report generator

R.BASE.4000 is a relational database management system for the DECmate MS-DOS operating system. It provides a method for defining, storing, retrieving, and manipulating data using relational operations. Using the R.BASE.4000 system, a novice or experienced user can quickly organize and utilize large amounts of data through English-like commands. No programming knowledge is required to take advantage of the R.BASE.4000 system's data definition and manipulation language.

Data types are date, dollar, integer, real, text, and time.

Features:

- Data Dictionary
- Database Query
- Report Writer
- Data Input, Editing Data
- Data Manipulation, Data Security
- On-Line HELP and Prompting
- Customization, Tutorial, and Computer-Based Instruction

Trademark: R.BASE.4000 is a trademark of Microrim, Inc.

MS is a trademark of Microsoft Corporation.

Price: $495

Rdb/ELN (Relational Database Management System)

SPD Number: 28.03
Operating System: MicroVMS, VMS
Keywords: Database management
Dictionary

Distribution media: 9-track 1600 bpi magnetic tape.

VAX Rdb/ELN is designed for dedicated applications on systems running in the VAXELN application environment. VAX Rdb/ELN applications are developed using the VAXELN Toolkit on a host VAX/VMS or MicroVMS system. The resulting bootable, VAXELN-based Rdb/ELN application is then moved to the VAXELN target system, using disk media or an Ethernet Local Area Network (LAN) link. The application program executes on the target system as a dedicated database system. The network link to the host development system may be used for remote debugging.

Price: $1500 - $7500

Spatial/II Version 1.0

SPD Number: X0.27
Operating System: VMS, MicroVMS
Keywords: Mapping
Workstations
Database management
Petroleum
Engineering

Spatial/II V1.0 is a unique software integration tool that manages petroleum exploration/production and mapping applications information. Spatial/II provides a common user/application interface and data display capability. Earth resource engineering applicatons and data can be accessed in a consistent environment, across a range of systems from VAXstations to VAXclusters.

Features:

- Offers rapid access to locational information in a workstation environment
- Allows flexible management of the attributes and models generated by earth resource engineering applications
- Provides framework for integrating numerous applications, including those based on artificial intelligence technologies

Spatial/II is a database specifically designed to store and distribute topological and cartographical information. The software is layered on the VMS and MicroVMS operating systems. Spatial/II V1.0:

- Provides the capability to store, edit, manipulate and display data that is geographically/locationally defined
- Is designed to support the object-oriented data access that geographical databases must have
- Makes effective modeling of surfaces possible
- Contains CIMI (a standard, flexible human interface) and Cgraf (a graphics tool kit) program environment tools

Price: Available upon request

VAX ADE

SPD Number: 25.76
Operating System: MicroVMS, VMS
Keywords: Application development
Office systems
Programming tools
Report generator

Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TU58 DECtape II cartridge.

VAX ADE provides information management for office professionals. VAX ADE users - managers, administrators, and clerical personnel - can create and manage information files and produce a variety of reports. VAX ADE provides an on-line tutorial, extensive HELP messages, and a self-prompting command structure. VAX ADE also allows users to produce and use simple applications without learning programming techniques or languages.

A version of this product is available for the PDP-11 computer.

Price: $995 - $2700

VAX CDD (Common Data Dictionary), Version 3.3

SPD Number: 25.53
Operating System: MicroVMS, VMS
Keywords: Dictionary
Language enhancers
Language processors
VAX information architecture

The VAX Common Data Dictionary provides a single logical data dictionary for a VAX/VMS or MicroVAX/MicroVMS system. VAX CDD contains definitions for VAX ACMS, VAX DATATRIEVE, VAX DBMS, VAX Rdb/VMS, VAX TDMS, VAX COBOL, VAX BASIC, VAX DIBOL, VAX FORTRAN, VAX C, VAX Pascal, and VAX PL/I.

This logical dictionary is built from one or more physical dictionary files, thus allowing users to access one clusterwide dictionary as well as individual dictionaries for each processor. Users can now take full advantage of VAX/VMS clusters with regard to dictionary usage. Within this dictionary, the VAX CDD maintains a hierarchical directory of the user's data descriptions; multiple versions are supported.

The VAX CDD provides security based on its hierarchical directory. Each directory and data description can have its own Access Control List. Each entry in that list specifies a class of user and the type of access allowed to the directory or data description. A user class is defined by selecting the UIC, user name, password, and terminal class parameters.

The dictionary can be simultaneously accessed and updated by any number of concurrent users. VAX CDD uses the VAX/VMS Lock manager to make certain that users do not interfere with one another.

Price: Available upon request

VAX DATATRIEVE, Version 3.4

SPD Number: 25.44
Operating System: MicroVMS, VMS
Keywords: Database management
Query facilities
Report generator
VAX information architecture

VAX DATATRIEVE, a query and report system for the VAX/VMS and MicroVMS operating systems, provides a uniform access method for data stored by RMS, VAX Rdb, and VAX DBMS files on VMS. Using VAX DATATRIEVE, a novice or an experienced user can retrieve or modify data without considering the underlying storage method or physical location of the data. VAX DATATRIEVE provides a tutorial mode for the novice and an Application Design Tool for the more experienced user who may want to define data structures.

Information can be displayed and printed as a report or as a simple table. Information can also be displayed with user-defined VAX FMS and VAX TDMS forms or presented graphically on a VT125 or a VT240. Hard copy of the graphic display is also available. VAX DATATRIEVE is also an efficient way to access information stored on other VAX, PDP-11, or DECSYSTEM-20 systems linked by DECnet.

VAX DATATRIEVE can be used interactively to retrieve, modify, store, or delete data with a simple set of commands. Frequently used combinations of commands can be stored as named procedures and

invoked by name. Programs written in other VAX languages can call VAX DATATRIEVE, allowing them to be independent of underlying data storage methods and physical location.

VAX DATATRIEVE includes commands to store, examine, modify, and delete definitions in the VAX Common Data Dictionary. The system can also use definitions stored by other VAX layered products, such as the VAX DBMS Data Definition Language (DDL) or the VAX Rdb DDL.

Access to remote VAX systems is provided by VAX DATATRIEVE, provided that it has been installed on the remote system. VAX DATATRIEVE uses the local data dictionary on the remote system to divide processing between the host and the remote system to minimize traffic over the communications link.

A highly structured nonprocedural language, VAX DATATRIEVE provides automatic access optimization, data type conversion, and data validation. Looping and control structures can be combined and nested to create complex, powerful commands.

Price: Available upon request

VAX DBMS (Database Management System), Version 3.1

SPD Number: 25.48
Operating System: MicroVMS, VMS
Keywords: Database management
Dictionary
VAX information architecture

Distribution media: 9-track 1600 bpi magnetic tape, RA60, RK07, RL02.

VAX DBMS is a multiuser general-purpose CODASYL-compliant database management system that runs under the VAX/VMS and MicroVAX II/MicroVMS operating systems. VAX DBMS is used for accessing and administering databases ranging in complexity from simple hierarchies to complex networks with multilevel relationships. VAX DBMS supports full concurrent access in a multiuser environment without compromising the integrity and security of the user's databases. VAX DBMS is based on the March 1981 Working Document of the ANSI Data Definition Language Committee.

VAX DBMS features include full concurrent access capabilities in a multiuser environment; record locking and journaling; automatic transaction and verb rollback; multiple-database support (one or more databases for a process); on-line backup; integration with the VAX Common Data Dictionary (CDD) facility; and schema, subschema, storage schema, and security schema data definition languages (DDLs).

VAX DBMS also includes FORTRAN Data Manipulation Language (FDML); a high-level call interface for VAX languages that adhere to the VAX calling standard; automatic subschema definition extraction from the CDD for BASIC, BLISS, COBOL, DIBOL, MACRO, Pascal, and PL/I when using the high-level call interface; an easy-to-use utility command language; an interactive database query utility with video display of subschema structure diagrams on VT100-compatible terminals; on-line database verification in concurrent, protected, and exclusive modes; off-line full and incremental database backup and restore; and the ability to redo a sequence of committed transactions (roll forward). In addition, VAX DBMS offers an Initial Load utility, an Unload utility for data extraction, and functionality for database restructuring with Unload/Load.

Additional features include BATCH RETRIEVAL ready mode, database snapshots for increased concurrency in large retrieval applications; space area management pages to improve database free-space search performance; Boolean record selection expression with index optimization on FIND and FETCH DML statements; data compression of data items and database key pointers; fragmented records, which allow large records to span multiple database pages; simple restructuring without reloading a database; and sorted sets implemented with B-trees, with prefix and suffix compression for sort keys.

Price: $2640 - $19,800

VAX DECreporter, Version 1.0

SPD Number: 27.10
Operating System: VMS, MicroVMS
Keywords: Dictionary
DATATRIEVE
Programming tools
Query facilities
Report generator

VAX DECreporter interactively creates reports using VAX DATATRIEVE or file and record descriptions stored in the VAX Common Data Dictionary (CDD). The user defines a report by choosing a CDD domain or view, the fields to print, column titles, calculated fields, sort and selection criteria. Report definitions may be saved in the CDD for future use.

The data in a database often needs to be accessed by many types of users, including programmers, business managers, and clerks. VAX DECreporter has not only a visual method of report preparation for the nonprogrammer, but also a powerful "programmer's" command language to prepare complex reports without significant programming.

VAX DECreporter consists of four components: a CDD maintenance utility, a dialog entry module that creates report commands, an extract module that selects data and interfaces to the VMS sort utilities, and a print module. The product operates under control of the VAX/VMS and MicroVMS operating systems, taking full advantage of the VMS system facilities and the VAX information architecture.

- Menu-driven
- Interactive report specification
  - Powerful record selection logic
  - Creation of computed fields
  - Detailed record description capabilities
  - On-line HELP facilities
- Programming interface
  - Interactive report specifications
  - Powerful data extraction features
  - Nonprocedural syntax
  - Conditional field selection
  - Print control commands
  - CDD maintenance utilities

Price: $2,200

VAX INFO I, Version 1.1

SPD Number: 27.19
Operating System: VMS
Keywords: Application development
Database management
Dictionary
Forms management
Query facilities
Report generator
VAX information architecture

VAX INFO I is a packaged set of VAX information architecture products which can be used in developing or prototyping simple to mid-range applications. The products included in this package are VAX Common Data Dictionary (CDD), Version 3.2, VAX TDMS, Version 1.5, VAX DATATRIEVE, Version 3.3, and VAX Rdb/VMS, Version 2.0.

The VAX Common Data Dictionary (CDD) - Provides a single logical data dictionary for a VAX, MicroVAX or VAXstation system, containing definitions for VAX ACMS, VAX DATATRIEVE, VAX DBMS, VAX Rdb/VMS, VAX TDMS, VAX COBOL, VAX BASIC, VAX DIBOL, VAX FORTRAN, VAX Pascal, VAX C, VAX RPG II or VAX PL/I.

VAX TDMS (Terminal Data Management System) - A product designed for the implementation of interactive, forms-intensive applications running on the VAX/VMS operating system, and run-time only applications for MicroVAX/MicroVMS systems. As a terminal subsystem, VAX TDMS can reduce the application development and maintenance effort by replacing application program logic, specific to terminal interactions, with definitions that are external to the program.

VAX DATATRIEVE - A query and report system for the VAX/VMS and MicroVMS operating systems. It provides a uniform access method for data stored by RMS, VAX Rdb, and VAX DBMS files on VMS. Using VAX DATATRIEVE, a novice or experienced user can retrieve or modify data without considering the underlying storage method or physical location.

VAX DATATRIEVE presents information in several different formats. information can be displayed as a report or as a simple table. Thus displayed, information can be printed on a hard-copy device. Information can also be displayed with user-defined VAX FMS and VAX TDMS forms or presented graphically on a VT125, VT240, or VT241.

VAX Rdb/VMS - A relational database management system designed for the VAX/VMS and MicroVMS operating systems. VAX Rdb/VMS is used to create and administer applications ranging from simple to average complexity where flexibility of access is most important.

- VAX Rdb/VMS databases on the same node.
- VAX Rdb/VMS databases on remote nodes in a network.
- VAX Rdb/ELN databases on remote nodes in a network.

Price: $20,000

VAX INFO II, Version 1.1

SPD Number: 27.20
Operating System: VMS
Keywords: Application control
Database management
Data retrieval
Dictionary
Distributed applications
Forms management
Networking
VAX information architecture

VAX INFO II is a packaged set of VAX information architecture products which can be used in developing distributed applications. The products included in this package are VAX Common Data Dictionary (CDD), Version 3.2, VAX TDMS, Version 1.5, VAX DATATRIEVE, Version 3.3, VAX ACMS, Version 2.0, and VAX Rdb/VMS, Version 2.0.

VAX Common Data Dictionary (CDD) - Provides a single logical data dictionary for a VAX, MicroVAX or VAXstation system, containing definitions for VAX ACMS, VAX DATATRIEVE, VAX DBMS, VAX Rdb/VMS, VAX TDMS, VAX COBOL, VAX BASIC, VAX DIBOL, VAX FORTRAN, VAX PASCAL, VAX C, and VAX PL/I.

VAX TDMS (Terminal Data Management System) - A product designed for the implementation of interactive, forms-intensive applications running on the VAX/VMS operating system, and run-time only applications for MicroVAX/MicroVMS systems. As a terminal subsystem, VAX TDMS can reduce the application development and maintenance effort by replacing application program logic, specific to terminal interactions, with definitions that are external to the program.

VAX DATATRIEVE - A query and report system for the VAX/VMS and MicroVMS operating systems. It provides a uniform access method for data stored by RMS, VAX Rdb, and VAX DBMS files on VMS. Using VAX DATATRIEVE, a novice or experienced user can retrieve or modify data without considering the underlying storage method or physical location.

VAX ACMS - In conjunction with other VAX Information Architecture products, is a tool which simplifies the process of developing transaction processing applications on the VAX/VMS operating system, especially those which are terminal I/O intensive. These applications can be distributed, so that a user on one node can select a task from an application existing on another node.

VAX Rdb/VMS - A relational database management system designed for the VAX/VMS and MicroVMS operating systems. VAX Rdb/VMS is used to create and administer applications ranging form simple to average complexity where flexibility of access is most important. VAX Rdb/VMS databases can access: VAX Rdb/VMS databases on the same node, VAX Rdb/VMS databases on remote nodes in a network, or VAX Rdb/ELN databases on remote nodes in a network.

Price: $32,000

VAX INFO III, Version 1.1

SPD Number: 27.21
Operating System: VMS
Keywords: Application control
Database management
Dictionary
Distributed applications
Forms management
Query facilities
VAX information architecture

VAX INFO III is a packaged set of VAX information architecture products which can be used in developing complex, distributed applications. The products included in this package are VAX Common Data Dictionary (CDD), Version 3.2, VAX TDMS, Version 1.5, VAX DATATRIEVE, Version 3.3, VAX ACMS, Version 2.0 and VAX DBMS, Version 3.0.

VAX Common Data Dictionary (CDD) - Provides a single logical data dictionary for a VAX, MicroVAX or VAXstation system, containing definitions for VAX ACMS, VAX DATATRIEVE, VAX DBMS, VAX Rdb/VMS, VAX TDMS, VAX COBOL, VAX BASIC, VAX DIBOL, VAX FORTRAN, VAX Pascal, VAX C, or VAX PL/I.

VAX TDMS (Terminal Data Management System) - A product designed for the implementation of interactive, forms-intensive applications running on the VAX/VMS operating system, and run-time only applications for MicroVAX/MicroVMS systems. As a terminal subsystem, VAX TDMS can reduce the application development and maintenance effort by replacing application program logic, specific to terminal interactions, with definitions that are external to the program.

VAX DATATRIEVE - A query and report system for the VAX/VMS and MicroVMS operating systems. It provides a uniform access method for data stored by RMS, VAX Rdb, and VAX DBMS files on VMS. Using VAX DATATRIEVE, a novice or experienced user can retrieve or modify data without considering the underlying storage method or physical location.

VAX ACMS - In conjunction with other VAX information architecture products, is a tool which simplifies the process of developing transaction processing applications on the VAX/VMS operating system, especially those which are terminal I/O intensive. These applications can be distributed, so that a user on one node can select a task from an application existing on another node.

VAX DBMS - A multiuser, general purpose CODASYL-compliant database management system that runs under the VAX/VMS and MicroVMS operating systems. VAX DBMS is used to create and administer database applications ranging in complexity from simple hierarchies to complex networks with multilevel relationships.

Price: $37,000

VAX RALLY, Version 1.0

SPD Number: 27.03
Operating System: MicroVMS, VMS
Keywords: Fourth generation language
Application development

VAX RALLY provides a powerful 4th Generation Language environment for developing applications. As an integrated package, VAX RALLY provides the tools necessary to construct VAX Rdb/VMS databases, forms, reports, menus, and on-line HELP for the application user.

Application developers can use the VAX RALLY menu interface and extensive default capabilities to create simple applications quickly. More sophisticated applications can be constructed in the VAX RALLY editing environment. Once applications are created they can be run directly from within VAX RALLY and installed in a VAX TEAMDATA directory. On systems where VAX TEAMDATA or VAX RALLY are installed, applications can be accessed directly from an ALL-IN-1 menu and run from DCL.

Price: $5600 - $84,000

VAX Rdb/VMS (Relational Database Management System), Version 2.1

SPD Number: 25.59
Operating System: MicroVMS, VMS
Keywords: Database management
Dictionary
Programming tools
VAX information architecture

Distribution media: 9-track 1600 bpi magnetic tape, RA60, RC25, RK07, RL02.

VAX Rdb/VMS is designed for the VAX/VMS operating system. Run-time and remote access is provided for the MicroVAX I and the VAXstation I, and run-time, remote-access, and development capabilities are available for the MicroVAX II and the VAXstation II. Application

programs developed to access VAX Rdb/VMS databases and running under VMS on a given node in a DECnet network can access either VAX Rdb/VMS databases on the same node or VAX Rdb/VMS or VAX Rdb/ELN databases on other nodes in the network.

VAX Rdb/VMS implements the DIGITAL Standard Relational Interface (DSRI). This allows programs running on any VAX or MicroVAX to access all other DSRI-compliant databases. VAX Rdb/VMS also supports unstructured data (segmented strings). This new data type allows the database to arbitrarily store large pieces of unformatted data efficiently. Segmented strings can store text, graphic images, digitized voice, or any other large data object.

VAX Rdb/VMS features include a data definition language, a data manipulation language, a data dictionary, database utilities, a relational database operator (RDO) language, concurrency and integrity controls, and security. In addition, VAX Rdb/VMS provides precompiler support for VAX BASIC, VAX COBOL, VAX FORTRAN, and VAX Pascal. Access through callable RDO is provided for VAX BLISS-32, VAX PL/I, VAX DIBOL, VAX C, and RPG II.

The VAX Common Data Dictionary is optional but recommended. When the CDD is used, VAX Rdb/VMS maintains identical copies of data definitions in the database and in the CDD. High-level languages and other VAX software products can use record definitions stored in the CDD. Other databases can use the field definitions stored in the CDD.

Price: Available upon request

VAX TEAMDATA, Version 1.0

SPD Number: 27.02
Operating System: MicroVMS, VMS
Keywords: Fourth generation language
Decision support
End user tool

VAX TEAMDATA provides powerful, easy-to-use information management capabilities. VAX TEAMDATA lets users store and modify data, using a screen-oriented, text-editing style, in a powerful relational database management system (VAX Rdb/VMS).

VAX TEAMDATA helps users share data, stored locally and remotely, in a variety of storage formats. VAX TEAMDATA users can access data stored in VAX Rdb/VMS databases by VAX TEAMDATA or by other VAX Rdb/VMS applications. Through optional use of VAX DATATRIEVE, VAX TEAMDATA allows (read-only) access to data stored in VAX DBMS databases or RMS files which have been defined as DATATRIEVE formats.

VAX TEAMDATA allows users to manipulate their personal data, as well as shared or remote databases, in simple tables, spreadsheets, reports, and graphs; performs complex queries and data reduction operations.

VAX TEAMDATA users can perform their tasks by selecting items from strip menus, using the command language, or a combination of the two.

VAX TEAMDATA can be used with ALL-IN-1, as an information management option on an ALL-IN-1 menu, or can be installed outside of ALL-IN-1. In addition, VAX TEAMDATA provides a run-time environment for applications generated using VAX RALLY. Refer to the VAX RALLY, Version 1.0 (SPD 27.03.00) for more information about this product.

Price: $1400 - $21,000

VAX VALU, Version 2.0

SPD Number: 26.94
Operating System: MicroVMS, VMS
Keywords: Communications
Engineering
Information management
Manufacturing
Production control
Programming tools
Shop floor control
VAX information architecture

Distribution media: RA60, RC25, RL02, RX50, TK50.

VAX VALU, an optional component of VAX VTX Version 2, consists of a set of programming tools that extend the distributed capabilities of the VAX VTX architecture to include nonvideotex applications such as order entry and electronic mail. VAX VALU can also be used to modify the VAX VTX user interface and to provide the necessary links to access VAX VTX from a variety of terminal types.

VAX VALU's three functional components are the External Link Kit (ELK), the Intelligent Data Mapper (IDM), and the Terminal Specific Interface (TSI):

- The External Link Kit provides systems-level programmers with the utilities to connect VAX VTX to other applications, such as transaction processing, that may run on either DIGITAL or non-DIGITAL systems. ELK supports only asynchronous programs and requires the programmer to provide for session management.

- The Intelligent Data Mapper provides an easy-to-use set of tools for the applications programmer. The IDM can link VAX VTX to new or existing applications on DIGITAL systems only.
- The Terminal Specific Interface (TSI) allows customers to modify the VTX Terminal Control Program to support a wide range of terminals. This protects customers computer investments by making VTX available from any terminal or personal computer.

Price: $6000 - $15,000

VAX Volume Shadowing

SPD Number: 27.29
Operating System: VAX
Keywords: Data availability
Shadow set

VAX Volume Shadowing is a feature available on VAX/VMS systems using HSC controllers with RA-series disks. This feature enhances data availability by duplicating all data written to disk onto two compatible disk volumes. A set of two disks on which the data is duplicated is called a "shadow set". A disk which is part of a shadow set is called a "member". Every member of a shadow set is identical to every other member of the shadow set. The system disk and Files-11 ODS-2 data disks may be volume shadowed. Shadow sets may be used as constituents of a volume set.

The minimum number of disks in a shadow set is one; the maximum is two. The ability to have a shadow set with only a single member allows a two-member shadow set to continue operation after the failure of one member. It also allows normal operation of a single member shadow set and addition of a second member only during a volume backup procedure. The maximum number of shadow sets per HSC is four.

VAX Volume Shadowing combines the efforts of an intelligent controller and a host operating system into a single shadowing solution. By allowing the two participants to perform those tasks to which they are best suited, the volume shadowing product in conjunction with the VMS operating system and the HSC-series controller achieves maximum product performance with minimal processor overhead.

Price: $2,375 - $28,500

VAX VTX, Version 2.1

SPD Number: 26.57
Operating System: MicroVMS, VMS
Keywords: Communications
Engineering
Information management
Manufacturing
Production control
Shop floor control
VAX information architecture

Distribution media: 9-track 1600 bpi magnetic tape, RA60, RC25, RK07, RL02, RX50, TK50.

VAX VTX, designed for VAX/VMS and MicroVAX/MicroVMS operating systems, is an information retrieval service that uses a tree-structured information base through which the user navigates by selecting choices from a menu. The content of the VTX information base consists of full-screen "pages" of information.

The information in the VTX information base is prepared by using standard DIGITAL editors, such as WPS and EDT. VAX VTX is used to arrange those pages in a hierarchical structure and to deliver them to the end user, based on the user's menu selections.

VAX VTX provides a distributed videotex service environment on VAX/VMS or MicroVAX/MicroVMS systems and networks, service-level functions compliant with CCITT F.300 recommendations, access through terminals to page and menu-oriented distributed text or graphics information bases, and an application-level protocol that permits communication between VTX and transaction-oriented "remote" applications with the use of VAX VALU, an optional component of VAX VTX.

VAX VTX provides the nontechnical person with both quick access to the system and the ability to peruse on-line information without training. VAX VTX features include extensive on-line HELP, available on request. The VTX Information Provider creates and maintains the information base structure through the use of a menu-driven utility.

VTX supports not only the VTX information base resident on a local VAX but also those VTX information bases resident on other VAX processors in a VAXcluster or over a DECnet link.

Price: $2500 - $37,500

VIDA

SPD Number: 27.25
Operating System: MicroVMS, VMS
Keywords: IBM interconnect
Data transfer
Transparent data access

VIDA is a VAX software component in a VAX/IBM® interconnect system which permits access to certain IBM mainframe databases, such as IDMS/R™. VIDA users can access IBM data through products such as DATATRIEVE, the Rdb/VMS utilities and embedded Data Manipulation Language (DML), and other layered products which access data through DSRI.

VIDA uses the DIGITAL SNA Gateway products to communicate with software from Cullinet Software, Inc., running on the IBM mainframe. The Cullinet software accesses the data from the IBM mainframe database, and sends it across the SNA Gateway to the VAX user's application software. The accessed data can also be stored in a VAX database or file.

Price: $3500 - $52,500

Laboratory and Research

DIGITAL's Integrated Laboratory Automation approach is to transform task automation into integrated laboratory-wide automation. This approach addresses three vital requirements for successful laboratory automation:

- Communications for sharing information among people, programs and computers within the laboratory and between the laboratories and remote facilities.
- Data management for organizing and safeguarding the volume of data that the laboratory generates, yet providing easy access to all of the laboratory's information whether from automated instruments or other computers.
- Application products/programs for accessing a wide range of automated instruments within the laboratory.

This solution is based on the VAX systems, DIGITAL networking, and the VAX LIMS applications system consistent with DIGITAL Integrated Laboratory Automation approach and the customer requirements. This strategy meets the following requirements as well as providing a firm foundation for expansion to accommodate new analytical technologies and capabilities in the future.

- Complete management system
- Easily retrievable, archivable data from the LIMS databases
- Rapid reporting of finished data to clients
- Ease of use by analytical service personnel
- Security of analytical instrumentation.

CLIN-TEAMS/REMOTE®

SPD Number: A4.52
Operating System: VMS, RSX, P/OS
Keywords: Personal computing
Laboratory
Pharmaceutical
Research

CLIN-TEAMS/REMOTE is a system of programs designed to assist in the process of collecting and reporting data in a clinical trial setting. It is not intended as a general-purpose data base management system. CLIN-TEAMS/REMOTE is designed for use by pharmaceutical firms to develop protocols specific to each drug trial and patient. The protocol software developed is downloaded on to a PRO 350 system for data collection in a format that looks like the paper Case Report Forms (CRFs).

CLIN-TEAMS/REMOTE is written in BASIC-PLUS-2 for the PDP-11 using RSX-11 and PRO/HOST Communications. CLIN-TEAMS/REMOTE may also run on VAX with VMS. The remote data collector module may be placed on the PRO 350 running P/OS with PRO Communications.

CLIN-TEAMS/REMOTE meets all the Good Laboratory Practices Regulations (GLPs) and the Clinical Monitoring Guidelines of the Food and Drug Administration (FDA) for management of biomedical data.

Trademark: CLIN-TEAMS/REMOTE is a registered trademark of Technical Evaluation and Management Systems, Inc.

Price: $9,000 - $45,000

DEChealth (DECmed Occupational Health System)

SPD Number: 25.78
Operating System: VMS
Keywords: Environmental
Medical
Mental health
Personnel

Distribution medium: 9-track 1600 bpi magnetic tape.

VAX DEChealth integrates, analyzes, and reports employee and environmental surveillance data for occupational health professionals in industry, government agencies, and hospitals. VAX DEChealth allows access to vital medical, exposure, morbidity, mortality, work history, and demographic data in order to study the relationship between chronic and acute health impairment and exposure to specific toxic agents.

The system permits correlation over time of individual biologic responses with work area and specific agent exposures. That correlation provides the medical staff and the occupational health team with an early means of detection, treatment, intervention, and control of occupationally induced injury and illness.

VAX DEChealth is made up of three modules:

- The Employee Module identifies and characterizes the employees in an occupational setting. The employee database contains the employee name, age, sex, employee number, and so on. In addition, this module permits a site to specify supplementary items to complete the employee profile.
- The Area Module defines the locations to be identified in tracking employees and agents. The definition of areas is performed through direct interaction with the system, so that new areas can be added or old ones deleted. Basic area reports can be produced that summarize the information in the area files.
- The Agents Module maintains a catalog of all chemicals, materials, and other substances used in the workplace.

The optional modules are the Health Services Module, which maintains a centralized database of employee medical and exposure information; the Industrial Hygiene Module, which integrates the quantitative monitoring data from the workplace and the employee and area files; and the Reporting Module, which provides reports summarizing the data found in the system files.

Price: $49,000

DECrad (DECmed Radiology System)

SPD Number: 25.77
Operating System: VMS
Keywords: Information management
Medical
Scheduling

Distribution medium: 9-track 1600 bpi magnetic tape.

VAX DECrad is an application system for data management in a diagnostic radiology department. The system provides diagnostic reports, billing information, scheduling, tracking, and statistical information in a usable, flexible format.

VAX DECrad can register and track patients, schedule examinations, and create, edit, and process radiology reports. DECrad also tracks radiology library materials, such as x-ray film folders.

VAX DECrad is comprised of seven modules:

- Patient Registration permits the entry of patient name, date of birth, hospital number, and insurance information. For patients who are registered in the system, only missing medical data or corrections need to be entered. System users can access and display information on a CRT.
- Examination Scheduling is for scheduling radiological examinations. The user can specify scheduling parameters, or times and rooms can be assigned by the system. VAX DECrad informs the user of and takes into consideration such factors as conflicting exams and patient preparation. The system produces all the forms necessary for the examination and prints bar code labels that can be attached to x-rays or to other forms for unique identification by a bar code reader. The system can request pulling of radiographic film folders from the library.
- Patient Tracking permits department personnel to monitor the flow of patients through the department, using prestored information about the length of examinations. Excessive examination delays are flagged, and work flow statistics are available to department managers.
- Film Library Management tracks the location of diagnostic materials stored in the department or in archival storage.
- Diagnostic Reporting includes a text processing subsystem to enter and edit diagnostic report information. Clerical staff use CRT terminals to enter dictated examination findings.
- Accounting maintains fee schedules for examinations performed in the department. Separate fee schedules are established for hospital and professional charges.
- Management Reports provide many arrangements of information about department activities for regulatory or utilization requirements.

Price: $36,500

GAMMA-11 F/B, Version 3.3

SPD Number: 15.60
Operating System: RT-11
Keywords: Data collection
Medical
Nuclear

Distribution media: 9-track 800 bpi magnetic tape, RK05, RL01, RL02, RX02.

This hardware/software system designed for nuclear medicine can acquire, store, display, and manipulate images from the gamma camera in order to supply quantitative, meaningful clinical information. In the foreground/background configuration, gamma camera data acquisition can take place independently of another process. This configuration includes two terminals: the foreground acquisition terminal for the gamma camera, which controls the setup and initiation of data collection, and the background terminal, which can be used simultaneously with the foreground terminal for data analysis by GAMMA-11 F/B programs, for program development in BASIC or FORTRAN, or for running any other programs that do not need immediate access to the disks for successful completion.

Only one terminal is included in the single-job configuration. That configuration has all the capabilities of the foreground/background system, except that data acquisition and processing cannot be carried out simultaneously.

Price: Available upon request

LabStar

SPD Number: X0.26
Operating System: MicroVMS
Keywords: Scientific workstation
Workstations
Laboratory
Data acquisition
Graphics
Signal processing
Statistics
Analysis

LabStar software is now available as a separate package. Previously, LabStar was only available as part of the VAXlab workstation.

LabStar software includes four major subroutine libraries:

- Real-time data acquisition
- Graphics
- Signal processing
- Statistical and numerical analysis

LabStar software also includes a full-screen, forms-driven interactive system management utility.

Typical applications include:

- Support for Q-Bus real-time I/O modules under the VMS operating system
- Real-time plotting and analysis routines make it easier for programmers to write scientific software
- System management utility makes it easy for the user to perform management tasks on a workstation

Price: $2,000 - $6,000

LabStar, Version 1.0

SPD Number: 28.30
Operating System: VMS
Keywords: VAXstation
Signal processing
Scientific
Statistics

LabStar is a subroutine library for real-time data acquisition, scientific plotting, and data analysis on a VAXlab, MicroVAX II or VAXstation II. The subroutines are callable from any VAX/VMS language which supports the VAX/VMS calling standard.

The real-time data acquisition subroutines simplify polled I/O, interrupt I/O, and DMA I/O between supported devices and computer memory. The I/O requests may be queued or called synchronously. When called synchronously the calling program waits for completion of the subroutine before continuing.

Subroutines are included for setting the various parameters of the real-time devices, performing the data transfers, and for queueing and dequeueing data buffers.

Supported devices include AXV11-C, KWV11-C, AAV11-DA, ADV11-DA, DRV11-J, DRV11-WA, and RD53.

Supported pseudo devices include fast file input and output, dynamic memory allocation, and interprocess communication.

Features:

- Signal processing subroutines perform fast Fourier transformations, signal filtering, data format translation, and interval histogramming.
- Filtering algorithms include simple polynomial filtering; first, second, and third derivative polynomial filtering; and nonrecursive filtering.

- Plotting subroutines to set up axes and labels as well as plot point, lines, and arrays of data. Data may be plotted in two or three dimensions. Contour plotting capabilities are also included. The plotting subroutines are based on GKS. All output devices supported by GKS are supported by these subroutines.
- Statistics subroutines perform mean and standard deviation calculations, regressions, and analysis of variance and covariance. Numerical analysis routines do matrix operations, integral calculations, finding polynomial roots, and solving first order differential equations.
- The Interactive Data Acquisition Tool (IDAT) is included to configure analog to digital converters and digital to analog converter, to perform analog I/O, to plot the data, and to store the data on disk. To use IDAT the user simply fills in the blanks on a series of screen forms.
- A system management program is provided to help simplify many of the tasks normally associated with a system manager.

Price: Available upon request

LIMS/SM (Laboratory Information Management System/Sample Management)

SPD Number: 26.18
Operating System: VMS
Keywords: Database management
Data collection
Dictionary
Medical

This database management system is layered on VAX DATATRIEVE, VAX DBMS, VAX Common Data Dictionary, and VAX FMS Form Driver and performs sample-tracking applications in testing laboratories. The product consists of the database schema and applications programs needed to form a fully functioning system.

VAX LIMS/SM provides sample log in, with sample identification or sample numbers generated by the system; worklist generation and backlog reports; collection lists of samples that have been entered into the system but that have not been picked up or sent to the lab; sample status reports, to check the progress of a sample through the lab; result reports on completed samples; audit trails for sample data (magnetic tape required); and data archiving (magnetic tape suggested).

VAX LIMS/SM includes two predefined plots for subject and sample trends. Plots can be displayed only on a VT125. Hard copy can be obtained by an LA34-VA (or similar capability printer) attached to the VT125.

Price: $23,175 - $38,610

LSP-11 (Laboratory Subroutine Package), Version 1.2

SPD Number: 15.44
Operating System: RSX, RT-11
Keywords: Calculation aids
Data collection

Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RK06, RL01, RL02, RX01.

These FORTRAN-callable subroutines perform standard analytical tasks commonly encountered in the laboratory. The subroutines are dedicated to processing data that has been acquired by other laboratory data-acquisition software.

The Laboratory Subroutine Package provides the user with the following data-manipulation subroutines: peak processing, envelope processing, interval histogramming with reference points, Fast Fourier transform, phase angle and amplitude spectrum, power spectrum, and correlation function.

Price: Available upon request

RS/1™

SPD Number: X0.16
Operating System: VMS, MicroVMS, RSX, P/OS
Keywords: Personal computing
Languages
Scientific programming
Computer-aided design
Graphics
Spreadsheets

RS/1 is an integrated software system designed for data management and analysis on VAX, PDP-11, and Professional series computers. Based on a simple English-like command language, RS/1 enables scientists and engineers to:

- Enter data into two-dimensional tables
- Visualize the data easily in tabular and graphics formats
- Perform a variety of statistical tests
- Perform linear and nonlinear regression analysis
- Create spreadsheets and models of complex systems
- Extend and customize the system for particular applications using RS/1's Programming Language (RPL).

RS/1 integrates these capabilities into a unified and consistent working environment. The tabular data format and file structures allow scientists and engineers to manipulate the same data to both make graphs and perform statistical analysis.

RS/1 is unique in terms of integration and compatibility. Other applications software exists for functions of data entry and retrieval, graphics, curve fitting, statistical analysis and modeling. But RS/1 is the only integrated package that runs across the full line of DIGITAL systems, with full DIGITAL support and service.

RS/1 uses the same functions and file formats for DIGITAL's VAX, PDP-11, and the Professional series computers. RS/1 takes full advantage of DIGITAL communications capabilities and data compatibility, allowing users at different locations to share data.

Trademark: RS/1 is a trademark of Bolt Beranek and Newman, Inc.

Price: $6,000 - $69,000

Office Systems

DIGITAL delivers complete computer solutions to professional business problems. We can address simple problems with standard solutions while offering tailored systems for more complex office problems.

The applications on which these solutions are based include word and document processing systems, electronic mail and videotex systems, and multi-function office systems.

All of DIGITAL's office systems have the same basic characteristics: They are complete, that is, they contain all the pieces to meet their specific functions. They easily connect to Ethernet local area networks and they can grow as the number of users grows. They are also available in all major international languages. All of DIGITAL's software works on all of DIGITAL's mainstream hardware products from desktop to large system clusters. And finally, DIGITAL can provide multi-vendor solutions.

ALL-IN-1 Office Menu

SPD Number: 25.85
Operating System: MicroVMS, VMS
Keywords: ALL-IN-1
Electronic mail
Menu handlers

Distribution media: 9-track 1600 bpi magnetic tape, RA60, RK07, RL02.

ALL-IN-1 Office Menu is a customizable, menu-oriented product offering generic office applications and a facility for integrating other business-oriented applications. ALL-IN-1 provides an environment in which users access applications in a consistent manner. Users' documents are stored in folders in file "cabinets" accessed from the office applications.

ALL-IN-1 Office Menu provides electronic mail, document processing, time management, communications, and desk management, including calendar and calculation. ALL-IN-1 Office Menu base system facilities include a flow control facility, a file cabinet, computer-based training, on-line HELP, and a printing facility.

Price: $15,000 - $22,500

ALL-IN-1 System for Business Operations

SPD Number: 26.90
Operating System: VMS
Keywords: Budgets
Database management
Financial management
Forecasting
Graphics

Distribution media: 9-track 1600 BPI magtape (PE), RL02 disk cartridge.

The ALL-IN-1 Business Operations and Strategy System (BOSSystem) is a financial management and reporting tool designed for corporate executives, financial analysts, and divisional or departmental managers who participate in the budgeting and forecasting process within a corporation.

BOSSystem is comprised of the following eight integrated and tolerable sub-systems all of which are menu driven under ALL-IN-1:

- Registry Management System
- Data Management System
- Budgeting System

- Forecasting System
- Actual System
- Financial Worksheet System
- Report Generating System
- Graphic System

BOSSystem provides for on-line Computer-Based Instruction (CBI) and interactive HELP. An installation guide and user reference documentation are also provided.

Price: $8600 - $15000

ALL-IN-1 System for Sales and Marketing, Version 1.1

SPD Number: 26.80
Operating System: MicroVMS, VMS
Keywords: ALL-IN-1
Information management
Office systems
Sales analysis

Distribution media: 9-track 1600 bpi magnetic tape, RA60, RK07, RL02.

The ALL-IN-1 System for Sales and Marketing is a profession-specific application that improves the productivity and effectiveness of sales and marketing organizations.

The system includes eleven modules performing functions related to the sales cycle: lead tracking, account base, customer contacts, opportunity pipeline, sales calls, expense sheets, labor activity, personnel information, reports and graphs, background information, and training.

Computer-Based Instruction (CBI) and an interactive on-line HELP facility teach users about the system. The documentation also includes an installation guide, a system manager's guide, and a user's guide.

Price: $11,000

ALL-IN-1 Voice Messaging Support

SPD Number: 26.44
Operating System: VMS
Keywords: ALL-IN-1
Electronic mail
Office systems
Telecommunications

Distribution media: 9-track 1600 bpi magnetic tape, RX01, TU58 DECtape II cartridge.

This product provides an interface between the ALL-IN-1 mail user and the store-and-forward system known as the Voicemail System™, which allows users to send voice messages to other users of the Voicemail System, reply to messages they have received, delete and save messages, and so on. Access to the system is made from a telephone equipped for tone dialing (the AT&T™ Touch-Tone or equivalent), and commands are entered by using the telephone keys.

The Voicemail System notifies the ALL-IN-1 Voice Messaging Support product running over a local high-speed link of the arrival of voice messages. The Voice Messaging Support software passes those notifications to the ALL-IN-1 user as items of electronic mail. The notifications include information provided by the Voicemail System to identify the sender of the voice message, the date and time of recording, and the length, in seconds, of the message. Notification can also be sent over a DECnet network to any remote user addressable by Message Router.

Trademark: Voicemail System is a trademark of Voicemail International, Inc.

AT&T is a trademark of American Telephone & Telegraph Company.

Price: Available upon request

A-to-Z Base System for MicroVAX

SPD Number: 28.13
Operating System: Micro/RSX, MicroVMS
Keywords: A-to-Z
Application integration
Flow control processor
Menu manager
Multiuser base system

Memory required: 512 Kbytes.

This integrated, expandable, multiuser system serves the small business computer market. A-to-Z provides word processing, electronic mail, graphics, spreadsheets, data management, and query and report-writing abilities. A-to-Z also integrates with other DIGITAL software, thus allowing the system to grow with small businesses.

A-to-Z is a single-source system, which means that applications may be easily integrated, data may be shared across applications, and keyboard conventions and facilities are the same in each application. Those features speed learning and use. A-to-Z also integrates with other DIGITAL and third-party software, thus allowing the system to grow with small businesses. The system also features clear menus and HELP facilities for the inexperienced user.

For more information on the A-to-Z family of products refer to:

- A-to-Z Business Graphics - SPD 18.19
- A-to-Z Business Graphics for MicroVAX - SPD 28.11
- A-to-Z Data Inquiry- SPD 18.17
- A-to-Z Developer's Kit for MicroVAX - SPD 28.14
- A-to-Z Document Transfer (DECdx) - SPD 18.31
- A-to-Z Electronic Mail - SPD 18.26
- A-to-Z Integrated System - SPD 18.16
- A-to-Z Integration Kit - SPD 18.20

Price: $995

A-to-Z Business Graphics

SPD Number: 18.19
Operating System: VMS, MicroVMS
Keywords: A-to-Z
Graphics
Office systems

A-to-Z Business Graphics for PDP-11 allows the nontechnical user to create business graphs. Aided by picture-assisted menus, a user can input the data to be graphed, design the graph description, and combine them to create a graph file for display on the video terminal or printer. Because the data, design, and graph files are maintained independently, modified or new data files can be used with a previously designed graph.

A-to-Z Business Graphics uses the capabilities of graphics terminals and graphic mode printers. On monochrome terminals, graphic images can be represented in black and white formats with the use of selected fill and line patterns. On color terminals graphs may be designed with four colors chosen from a list of fourteen available colors.

A-to-Z Business Graphics can create twelve graph types, including Vertical Bar, Horizontal Bar, Vertical Clustered Bar, Horizontal Clustered Bar, Vertical Stacked Bar, Horizontal Stacked Bar, Simple Line, Shaded Line, Scatter, and Pie.

Features include automatic numeric scaling with numeric labels for both "x" and "y" values, graphs up to 8 "y" values for each "x" value, and axis scaling control by entering minimum "x" and "y" values. The user can select from 16 line patterns, 9 fill patterns, and 5 grid types.

Price: Available upon request

A-to-Z Document Transfer (DECdx) for PDP-11, Version 1.5

SPD Number: 18.31
Operating System:
Keywords: A-to-Z
DECmate
Communications
File transfer
Word processing

A-to-Z Document Transfer (DECdx) is a layered software product that resides on an A-to-Z host system. A-to-Z Document Transfer enables DECmate II/III systems and the host to be linked together for better system use, document exchange, and information and data sharing.

DECmate users can use A-to-Z Document Transfer to transfer documents between the DECmate system and the A-to-Z host over a serial line interface. The WPS word processing document formats, and print control characters are retained. During an A-to-Z Document Transfer session, the DECmate system operates as though it were another terminal on the host system.

Communication between the DECmate and A-to-Z systems uses the DIGITAL Standard Document Exchange (DX) error-detecting and error-correcting protocol and file format.

Features:

- Compatibility
- Shared access
- Transfer function
- Index capability
- Add function
- Conversion
- Printing
- Display of a document's text (read) and document deletion (delete)

- Documentation (extensive on-line user assistance and a user's manual)

Price: $600 - $995

A-to-Z Electronic Mail

SPD Number: 18.26
Operating System: VMS, MicroVMS
Keywords: A-to-Z
Communications
Electronic mail
Networking

A-to-Z Electronic Mail is a menu-driven electronic mail system that runs as an optional component of the A-to-Z Integrated System.

A-to-Z Electronic Mail allows the user to:

- Send, answer, and forward messages
- Use electronic mail from A-to-Z menus
- Create and edit messages using A-to-Z Word Processing
- Store and list messages in folders
- Retrieve messages from folders
- Collect messages from folders by subject
- Print messages on a hardcopy printer
- Delete messages
- Move messages from one folder to another
- Convert a message into an A-to-Z report
- Define, use and change distribution lists
- Obtain on-line HELP explaining A-to-Z Electronic Mail functions.

A-to-Z Electronic Mail uses the same installation process as the other A-to-Z Integrated System components.

A-to-Z Electronic Mail automatically uses A-to-Z Word Processing for creating and editing messages. The user is not required to learn a special purpose editor for A-to-Z Electronic Mail.

Price: Available upon request

A-to-Z Word Processing for MicroVAX, Version 2.0

SPD Number: 28.15
Operating System: MicroVMS
Keywords: A-to-Z
List processing
Word processing

A-to-Z Word Processing permits integrated word and data processing in a multiuser environment which extends a data processing system with word processing capabilities. The A-to-Z Word Processing editor creates and maintains documents stored on the A-to-Z Integrated System. Storage available for documents will vary depending upon other storage requirements.

A-to-Z Word Processing is a DECmate-style word processor providing most of the features of DECmate and WPS-8. Experienced WPS or DECmate users can begin using A-to-Z Word Processing immediately. A-to-Z Word Processing supports the WPS keyboard so that users can execute the editing functions just as they would when using DECmate or WPS-8.

A-to-Z Word Processing documentation is organized and formatted to closely resemble WPS documentation. Users will be able to quickly learn any features unique to A-to-Z Word Processing; WPS or DECmate users don't need to retrain to use A-to-Z Word Processing.

NOTE
A-to-Z does not support VT100 series terminals.

Features:

- Concurrent word and data processing
- Integration of word processing with other supporting applications
- Easy-to-learn commands
- Ten user-defined keys (UDK) for predetermined repetitive operations that can be recalled with a two keystroke sequence. UDKs allow sequences of frequently used steps to be stored, including repetitive looping and storage of up to 250 keystrokes per UDK.
- Center screen editing allows view of preceding and following text
- Special editing keypad
- Ten stored rulers for repeated settings
- Four-function math capability

Price: Available upon request

A-to-Z Word Processing for PDP-11, Version 1.7

SPD Number: 18.18
Operating System: RSX, Micro/RSX
Keywords: A-to-Z
List processing
Word processing

A-to-Z Word Processing for PDP-11 permits integrated word and data processing in a multiuser environment. It extends a data processing system with word processing capabilities. The A-to-Z Word Processing editor creates and maintains documents stored on the A-to-Z Integrated System. Storage available for documents will vary depending upon other storage requirements.

A-to-Z Word Processing is similar in editing and operating functions to that of DECmate and WPS-8. Experienced WPS-8 or DECmate users can easily adapt to A-to-Z Word Processing by referencing the *A-to-Z Word Processing User's Guide.*

Features:

- Concurrent word and data processing
- Integration of word processing with other supporting applications
- The ability to incorporate a graph into a word processing document and display the graph (requires A-to-Z Business Graphics and a VT240 or VT241 graphics terminal)
- Incorporation of ASCII text files output by other applications into a word processing document
- Menu-driven operation
- Easy-to-learn commands
- Ten user-defined keys (UDK) for predetermined repetitive operations that can be recalled with a two keystroke sequence
- Full control of tabs, margins, justification, and pagination (ragged or justified margins)
- Underline and bold printout
- Running page headers and footers
- Automatic insertion of current date in printed document
- Center screen editing allows view of preceding and following text
- Special editing keypad
- Ten stored rulers for repeated settings
- Four-function math capability
- Ten stored printer settings
- Queued printing
- List processing

Price: $995

CT*OS™ Word Processing System, Version 1.0

SPD Number: 13.77
Operating System: P/OS
Keywords: Word processing
List processing
Editing
Technical character support
Personal computing

Distribution media: RX50 floppy diskette

CT*OS Word Processing System is a full-featured, professional quality word processing system. CT*OS supports all standard word processing and list processing functions, reads and writes ASCII files (to allow integration with other applications), and supports the Greek scientific character set.

Also included with CT*OS is the Spelling Corrector, which comes with a dictionary of 87,000 words, to which the user can add words. The Spelling Corrector identifies the misspelled word(s), and allows the user to change it and all occurrences of that word, or to leave the word(s) unchanged. CT*OS supports an on-line HELP facility for the novice user.

CT*OS is a user-friendly, menu-driven system designed to emulate DIGITAL DECmate II word processors.

Trademark: CT*OS is a trademark of Compu-Tome, Inc.

Price: Available upon request

DECdx/RSX

SPD Number: 13.39
Operating System: RSX
Keywords: File transfer
Text management
Word processing

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02.

This layered software resides on RSX-11M and RSX-11M-PLUS host systems. DECdx enables WPS-8-based systems, both stand alone and shared resource, and the host to be linked for better system utilization, document exchange, and information and data sharing.

Users can use DECdx to transfer documents between the WPS-8 system and the RSX host mainframe over a serial-line interface. The WPS word processing formats and print control characters are retained. During a DECdx session, the WPS-8 system emulates a terminal on the host system.

Communication between the systems uses the DIGITAL Standard Document Exchange (DX) error-detecting and correcting protocol and file format.

Price: $2350

DECmail

SPD Number: 25.64
Operating System: VMS
Keywords: Electronic mail
Networking
Utilities
Telecommunications

Distribution media: 9-track 1600 bpi magnetic tape, RA60, RK07, RL02.

VAX DECmail is a standalone mail and filing system for creating, editing, sending, and processing messages on a single VAX computer system. The system can also store, search for, and retrieve messages held in system-provided or user-created folders. VAX DECmail memos and VAX/VMS (RMS) files can be moved between VAX DECmail and the RMS file system. Memos can be transferred to/from DIGITAL's word processing systems, using DX protocol.

VAX DECmail consists of a command interface, an editor, and a filing system. The command interface offers two modes of operation: menu mode for the new or infrequent user and command mode for the experienced user. Command mode allows the user to issue the same instructions that are available in menu mode but in a faster, abbreviated manner. Both modes offer extensive HELP facilities; explanations and directions are available for all menu items, menu item options, and command prompts.

Price: $12,000

DECmail-11, Version 2.0

SPD Number: 13.19
Operating System: Micro/RSTS, Micro/RSX, RSTS, RSX
Keywords: Electronic mail
Networking

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02, RX50.

This electronic message system runs on the RSTS/E, Micro/RSTS, RSX-11M-PLUS, and Micro/RSX operating systems. On a single-node system, DECmail-11 can create, edit, send, and process messages and store, search for, and retrieve messages held in user folders.

DECmail-11 can operate in a network environment by using DECnet/E for RSTS and DECnet-11M-PLUS for RSX. The Message Router, an optional product for the network environment, provides a store-and-forward transport mechanism among RSTS/E, RSX-11M-PLUS, and VAX/VMS nodes. DECmail-11 acts as a user-agent to the Message Router.

DECmail-11 users may use the EDT text editor for preparing text messages. The EDT option provides the power of the standard editor without the need to learn a new set of editing commands.

DECmail features include on-line HELP; message creation, answering, and forwarding, with or without editing; message filing into folders; selective display of message listings by author or subject; distribution lists; message printing and deleting; the ability to send, as a message, an ASCII text file (stream, variable, fixed, or sequential) created outside the DECmail-11 environment; and the ability to export message text into RSTS/E, Micro/RSTS, RSX-11M-PLUS, or Micro/RSX files.

Refer to SPD 13.19 (RSTS) or SPD 13.27 (RSX) when requesting further information on this product from your local DIGITAL sales office.

A version of this product is available for the VAX computer.

Price: Available upon request

DECmail/MS-10, Version 10.0

SPD Number: 07.21
Operating System: VMS
Keywords: Electronic mail
Electronic messages
Networking

DECmail/MS-10 is a mail and filing system software product that runs on the TOPS-10 operating system. With DECmail/MS-10, users can create, edit, send, and process messages on a single node DECsystem-10 computer. Users can also store, search, and retrieve messages held in their message file. The extensive HELP facilities explain all command prompts. In addition, users can customize presentation of messages on the terminal.

Price: $12,000

DECmate Office Workstation

SPD Number: 60.28
Operating System: WPS
Keywords: Communications
Electronic messages
Networking

With the availability of the DECmate Office Workstation (DMOW) Version 2.0 software, DIGITAL customers with ALL-IN-1 systems can now increase the number of workstations on their VAX computer systems. DMOW features include:

- Integrated and customizable menus
- Electronic messaging
- Local word processing
- Document transfer to another system
- Automatic connection to ALL-IN-1
- System security
- Installation

Price: $395

DECpage

SPD Number: 26.29
Operating System: VMS, MicroVMS
Keywords: Graphics
Laser printer
Printing
Text management
Word processing

Distribution media: 9-track 1600 bpi magnetic tape, RA60, RK07, RL02.

This VAX/VMS layered product accessible through ALL-IN-1 or from the DECpage/VMS interface uses the LN01S laser printer, word-processed documents, and ReGIS-based graphics to produce high-quality text and graphics output without text markup or graphic arts skills. DECpage prints memos and letters, reports, directories, newsletters, and overhead transparencies. DECpage supports all DECdx-format word processing systems, including DECmate I, II, and III; WS78; WS200; DECword; and WPS-PLUS.

DECpage uses variable-size characters, italics, and bold in a variety of proportionally spaced typefaces (fonts) on the LN01. DECpage reformats the input document by performing automatic font selection and text justification, based on the print style and keying conventions (bold, underline, etc.) selected by the user.

Price: $3000 - $7500

DECspell Verifier/Corrector

SPD Number: 26.34
Operating System: MicroVMS, VMS
Keywords: ALL-IN-1
Utilities
Spelling checker
Word processing

Distribution media: 9-track 1600 bpi magnetic tape, RX01, TU58 DECtape II cartridge.

This spelling verification and correction utility can automatically scan text documents or files, detect spelling errors, and offer a list of substitutions for the incorrectly spelled word and is offered with an 80,000-word American/English or British/English lexicon. VAX DECspell includes the Verifier/Corrector or Verifier Utility, which allows users to interactively verify and correct spelling; the Verifier/Corrector may be upgraded to allow users to verify documents against either lexicon. Also included is a personal dictionary formatter utility, which allows users to maintain, sort, format, and print their own dictionaries, and the lexicon databases.

Price: $1850 - $2775

DESQ™, Version 1.20

SPD Number: A3.45
Operating System: MS™-DOS
Keywords: Personal computing
Multi-windowing/simultaneous viewing
Data transfer

DESQ is a multi-window decision support environment, designed to allow the flexibility of running several application programs at once, and the ability to transfer and integrate data between the application programs.

DESQ allows the user to refer to several pieces of information from different sources simultaneously, move between applications and data quickly, transfer information between applications, store applications not currently needed (yet recallable immediately), and organize files via enhanced filing capabilities including sort and select.

DESQ permits the user to create personalized front-ends to currently used applications for ease of installation via a learn function.

DESQ is menu-driven and can be activated via the keyboard or optionally through mouse input.

Trademark: DESQ is a trademark of Quarterdeck Office Systems.

MS is a trademark of Microsoft Corporation.

Price: $399

Message Router for RSX-11M-PLUS or RSTS/E, Version 1.0

SPD Number: 14.29
Operating System: RSTS, RSX
Keywords: Networking

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02.

This store-and-forward message-transport system optimizes message delivery in a DECnet Phase III or Phase IV network. The Message Router for RSX-11M-PLUS or RSTS/E software logs the progress of messages in the network and informs the sending application if undeliverable.

Message Router for RSX-11M-PLUS or RSTS/E supports the existing standards for Network Protocol, Interface, and Formatting being developed for Message Handling Systems by the National Bureau of Standards (NBS). The NBS supports messages constructed with fields defined by the Specification for the Format of Messages for Computer-Based Message Transport Systems. Those messages can consist of any information needing transport in the DECnet Phase III or Phase IV network, including text, data, and arbitrary files.

Message Router for RSX-11M-PLUS or RSTS/E requires application programs, called User Agents or Gateways (UA/G), that will format and display messages, interact with Message Router for RSX-11M-PLUS or RSTS/E in a "posting protocol" to send messages or in a "delivery protocol" to receive messages, convert a received message from Message Router for RSX-11M-PLUS or RSTS/E standard format into the required application format, and convert a sending application format into the Message Router standard format.

Refer to SPD 14.29 for RSX-11M-PLUS or 13.24 for RSTS/E when requesting further information on this product from your local DIGITAL sales office.

Price: Available upon request

Message Router for VMS, Version 2.0

SPD Number: 26.33
Operating System: VMS
Keywords: File transfer
Networking

Distribution media: 9-track 1600 bpi magnetic tape, RX01, TU58 DECtape II cartridge.

This store-and-forward message transport system optimizes message delivery in a DECnet Phase III or Phase IV network, and runs on a properly configured VAX/VMS operating system that supports a DECnet Phase III or Phase IV network. Message Router for VMS supports the existing Standards for Network Protocol, Interface, and Formatting being developed for Message Handling Systems by the National Bureau of Standards (NBS). The software logs the progress of messages in the network and informs the sending application if the message is undeliverable.

Message Router for VMS requires application programs, called User Agents or Gateways, that will format and display messages, interact with Message Router for VMS in a "posting protocol" to send messages or in a "delivery protocol" to receive messages, convert a received message from Message Router for VMS standard format into the required application format, and convert a sending application format to the Message Router standard format.

Message Router for VMS documentation helps users develop their own User Agents/Gateways. In addition, the VMSMAIL Gateway is included with the Message Router so that users can access the VMS Personal Mail Utility.

Price: $2200

MS Project™ – Microsoft® Applications for the VAXmate

SPD Number: X0.33
Operating System: MS™-DOS V3.10
Keywords: Project management
VAXmate

The MS Project application can be installed on a VAXmate, MicroVAX, or VAX server. VAXmates attached to the server may then share a single copy of the application, providing the customer has purchased the appropriate license. This saves the inconvenience of loading the application off a floppy if no hard disk is present and assures each user of having the latest version of the application.

MS Project is a project management tool that allows users to perform simple scheduling of a wide range of tasks and efficient handling of work schedules. Users can define start and stop dates, slack time, drop dead dates, interdependencies between tasks and subtasks, resource availability, and cost information. MS Project allows a variety of task selection criteria to view information in different ways. Data can be plotted and reported. MS Project supports DIF, SYLK, dBASE™ (SDF) and ASCII file formats for exchanging information with MULTIPLAN, MS Chart, Lotus 1-2-3™, and many other programs.

Trademark: Microsoft is a registered trademark of Microsoft Corporation.

MS and MS Project are trademarks of Microsoft Corporation.

Price: $395

Phoenix™-PMS Project Management System Financial Analysis

SPD Number: D8.92
Operating System: VMS, MicroVMS
Keywords: Financial analysis
Budgets
Expenses
Financial management

The Phoenix-PMS Project Management System Financial Analysis package provides a means of quantifying budgets, schedules, and work accomplished on the basis of dollar expenditures, thereby providing the program manager with a tool that allows evaluation of work status using a quantifiable method. The package provides a common language, so that all levels of management may deal effectively with the cost and schedule problems associated with a program.

Phoenix-PMS Project Management System Financial Analysis produces four different tabular reports, all of which are sorted in WBS (Work Breakdown Structure) task number order for easy comparison:

- Actual versus budget expense report
- Budget summary report
- Work breakdown structure report
- Cost/schedule status report

Also included in this package are two plots, the cost analysis plot and the variance analysis plot.

Phoenix-PMS Project Management System Financial Analysis can be used alone or in conjunction with Phoenix-PMS Project Management System Planning and Evaluation.

Trademark: Phoenix is a trademark of Advanced Technology, Inc.

Price: Available upon request

Phoenix™-PMS Project Management System Planning and Evaluation

SPD Number: D8.57
Operating System: VMS, MicroVMS
Keywords: Completion status
GANTT
PERT
Project management
Schedule status

Phoenix-PMS Project Management System is a multi-level decision-support system designed for project managers and analysts. Developed by Advanced Technology Inc., Phoenix-PMS runs on the MicroVAX and VAX. Phoenix-PMS is manufactured and supported by DIGITAL through the DIGITAL Classified Software Program.

Phoenix-PMS Project Management System Planning and Evaluation provides critical management information through state-of-the-art interactive graphics, query techniques, high-quality plotted graphics, formatted/sorted output, and printed tabular data.

The system is made up of three modules: Milestone Tracking, Milestone Plotting, and Network Analysis. These modules provide a variety of ways to analyze a project using a single database.

Trademark: Phoenix is a trademark of Advanced Technology, Inc.

Price: $2,795 - $12,995

Phoenix™-Pro, Version 1.0, Project Management System Planning and Evaluation

SPD Number: A4.79
Operating System: P/OS
Keywords: Personal computing
Data management
File transfer
Office productivity
Presentation aids
Production control
Project management
Sales analysis
Scheduling

Phoenix-Pro Project Management System Planning and Evaluation is designed to provide management information to the professional manager and analyst using state-of-the-art interactive graphics, query techniques, high-quality plotted graphics, formatted/sorted output, and document ready and printed tabular data. The system is designed in three modules: milestone tracking, milestone plotting, and network analysis. These allow the user to track at a glance, using one database in a variety of ways.

Milestone tracking is designed for managers who require printed reports of project status. Milestone plotting uses a common database with milestone tracking which provides the user with the ability to plot schedules that include milestones and activities.

Trademark: Phoenix is a trademark of Advanced Technology, Inc.

Price: $1,795

Rainbow Office Workstation

SPD Number: 50.13
Operating System: MS™-DOS
Keywords: Personal computing
ALL-IN-1
Communications
Electronic mail
Office systems

The Rainbow Office Workstation (ROWs) is a software product that simplifies the use of local Rainbow applications and provides an integrated, multifunctional communications environment between a hard disk-based Rainbow series and a VAX system running the VAX/VMS operating system and the VAX Rainbow Office Workstation software. The Rainbow Office Workstation environment provides a limited user MS™-DOS shell that uses a textual menu system that looks similar to

an ALL-IN-1 office menu. The user shell includes such utility functions as cabinet and folder storage of files in MS-DOS subdirectories, a two-dimensional scrolling utility for viewing files and subdirectory listings, and file management services which include directory, copy, delete, and print.

Trademark: MS is a trademark of Microsoft Corporation.

poly-XFR is a trademark of Polygon Associates, Inc.

CP/M is a registered trademark of Digital Research, Inc.

Price: Available upon request

Synergy, Version 2.0

SPD Number: 40.45
Operating System: P/OS
Keywords: Communications
Data management
File transfer
Graphics
Integrated text and graphics
Menus
Office systems
Spreadsheets
Windows
Word processing
Personal computing

Synergy provides a windowing interface to the PRO 300 series and a set of integrated applications that work in these windows. Up to four applications can be viewed simultaneously in windows on the screen. While one application is active, others are suspended. Switching from one application to another requires only a few keystrokes.

With Synergy, data can be transferred and manipulated among various applications via the clipboard option. Synergy supports complete integration into the DIGITAL network environment via DECnet.

The following applications are included in Synergy Version 2.0:

- Prose Plus V2.0 - An integrated text and graphics editor that includes a new 80,000-word spelling checker. (Graphics can be imported from other applications, e.g., PRO/SIGHT). Prose Plus is also available as a separate product.
- PRO Communications V3.0 - Supports PRO LAT Ethernet terminal support; VT240/VT241 terminal emulator; features a new DECmate-to-Professional file conversion utility. PRO Communications V3.0 is also available as a separate product.

- Synergy Calendar - Displays personal schedule by day, month, year, or week. Can be updated locally or over DECnet.
- Synergy Spreadsheet - 52 by 256 column worksheet with a broad range of "what if" and modeling features.
- Synergy Data Manager - Data is entered and edited through user-defined forms. Includes a Synergy-to-Datatrieve conversion function.
- Synergy Graph - A statistical graph package that creates bar, line, pie-chart, scatter, and point graphs from data generated in Synergy spreadsheet, Synergy Data Manager, or external sources.

Synergy application development tools are now included in PRO/Tool Kit.

Price: $295 - $695

WPS-PLUS/VMS

SPD Number: 26.27
Operating System: VMS
Keywords: Electronic mail
List processing
Editing
Office systems
Presentation aids
Word processing

Distribution media: 9-track 1600 bpi magnetic tape, RA60, RK07, RL02, RX01, TU58 DECtape II cartridge.

WPS-PLUS/VMS is a document-processing system that provides Gold Key-style word processing for VAX/VMS users. WPS-PLUS/VMS allows VAX/VMS users to create, edit, and print documents; produce form letters and maintain mailing lists; file and retrieve documents by document name, number, or keyword; include data from a VMS application in a document; convert a WPS-PLUS document to a VMS file; use VMS mail to mail a document, which is first converted to a VMS file; and perform self-training, using computer-based instruction.

WPS-PLUS/VMS, with separately purchased options, allows users to exchange documents with DECmate II and DECdx/VMS; verify and correct spelling and capitalization while editing; and include diagrams, matrices, and VT100 character-set equations in a document.

Price: $6000

Operating Systems

CP/M-86/80® Operating System, Version 2.1

SPD Number: 50.06
Operating System: CP/M®
Keywords: Personal computing
Operating systems

CP/M-86/80 operating system for the Rainbow personal computer is an enhanced version of CP/M-86/80, Version 1.0. CP/M-86/80 was developed by Digital Research, Inc. and enhanced by Digital Equipment Corporation.

It supports dual processor architecture of the Rainbow, 5 or 10 Mbyte integral Winchester disk option (RCD50-XA or RCD51-BA), GSX-86 graphics software functions (developed by Digital Research, Inc.), data communication for asynchronous protocol packages, and RX50 floppy disk drive which also includes enhanced error recovery.

Trademark: CP/M and CP/M-86/80 are registered trademarks of Digital Research, Inc.

Price: Available upon request

CTS-300

SPD Number: 12.09
Operating System: CTS-300
Keywords: Database management
Language processors
Programming tools
Real time

Distribution media: RK05, RK06, RK07, RL01, RL02, RX02, RX50.

CTS-300 is a disk-based single/multiuser system that supports commercial applications on small PDP-11-based DIGITAL Datasystems or equivalent configurations. CTS-300 applications are written in DIBOL.

CTS-300 DIBOL, a high-level procedural language for interactive business data processing, is based on the DIBOL Standards Organization's DIBOL-83 definition of the language. CTS-300 DIBOL is highly compatible with DIBOL-83 implementations on other operating systems, including VAX/VMS, RSX-11M-PLUS, Micro/RSX, RSTS/E, P/OS, and Professional CTS-300. DIBOL-83 supports a set of language statements called structured constructs. Those statements are designed to complement and facilitate desirable programming practices.

The DIBOL compiler reads a source program and produces an object module. The compiler can produce a source listing with embedded diagnostics.

The CTS-300 package consists of the RT-11 operating system, a choice of three run-time systems, and utilities. Since RT-11 is included in this package, a CTS-300 licensee can order any RT-11-dependent product without reordering a specific license for RT-11.

Price: $171 - $2000

DECmate CP/M-80® Operating System, Version 2.1 Control Program for Microcomputers

SPD Number: 60.01
Operating System: CP/M
Keywords: Personal computing
Commands
CP/M®
Operating systems
Utilities

DECmate CP/M-80 is an implementation of CP/M, Version 2.2, (Control Program for Microcomputers). This is the third release of DECmate CP/M-80 which includes added hardware support and enhancements. Added hardware support includes the DECmate III system and the LQP03 printer. New software enhancements include: the ability to run the WPSCONV utility in menu mode as well as in command mode, the addition of the MENU command, which returns you to master menu, and functionality to password protect your volumes located on the Winchester hard disk.

DECmate CP/M-80 is a single-user operating system specifically tailored for DECmate II and III systems equipped with the optional Auxiliary Processing Unit (APU). Using a floppy diskette storage system and/or a hard disk storage system CP/M provides for program construction, storage, and editing along with assembly and program debugging facilities. CP/M includes a text editor, Z80-microprocessor-compatible assembler, debugger, and file utility programs.

Trademark: CP/M and CP/M-80 are registered trademarks of Digital Research, Inc.

Price: $195

DSM-11

SPD Number: 12.18
Operating System: DSM
Keywords: Database management
Information management
Application development
Text management

Memory required: 128K. Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RK06, RK07, RL01, RL02, RX50.

This multiuser data management system comprises both an operating system and the high-level language DIGITAL Standard MUMPS, a superset of the American National Standard specification (X11.1-1983). Standard MUMPS is a high-level language whose syntax and semantics are oriented toward solving database problems. Standard MUMPS can be used by programmers with relatively little programming experience. Although full use of the complete range of Standard MUMPS capabilities requires programming experience, useful working code can be quickly produced by the novice programmer. The text-handling capabilities allow the inspection of any data item for content (such as particular keywords) or for format (such as letters, numbers, or punctuation characters in a string of text). Those capabilities are useful for on-line data entry checking and correction. Other text-handling capabilities include the ability to concatenate text strings and to segment text.

DSM-11 hierarchical file structure allows users to easily design data file strategies for a particular processing environment. Space does not have to be allocated prior to data entry, since data is stored dynamically. Dynamic file storage with variable-length string subscripts allows the user to easily modify or expand the existing database.

DSM-11 is an on-line program development and data storage and retrieval system. A programmer can rapidly write, test, debug, or modify a program so that a working application is quickly established. A user can enter, inspect, or change data interactively and efficiently.

A version of this product is available for the VAX computer.

Price: $3000

Micro/RSX

SPD Number: 14.28
Operating System: Micro/RSX
Keywords: Development tools
Diagnostics
Microprocessor development

Distribution medium: RX50.

This multiuser general-purpose operating system for the MicroPDP-11 computer provides a run-time and program development system based on RSX-11M-PLUS, Version 2.1. The system features ease-of-use design; customer installability; a pregenerated system; transportability; DIGITAL Command Language (DCL) and EDT, DIGITAL's easy-to-use, flexible screen editor; error logging; HELP files; named directories; and new documentation.

The Micro/RSX Base Kit and a PDP-11 general-purpose license must be purchased to use Micro/RSX. The Micro/RSX Advanced Programmer's Kit is an optional package that requires the purchase of the PDP-11 general-purpose license and the Micro/RSX Base Kit as a prerequisite. The Base System Kit includes software and documentation for the run-time system and device support. The Advanced Programmer's Kit provides software and documentation to support native MACRO-11 and privileged program development. The Advanced Programmer's Kit also includes the Data Terminal Emulator and File Transfer Utility (DTE/MFT), which allows easy file interchange among the Micro/RSX system and other PDP-11 RSX systems and the Professional. ANSI magnetic tape support is included in this kit.

Price: $969

MicroVMS

SPD Number: 28.05
Operating System: MicroVMS
Keywords: Development tools
Diagnostics
Microprocessor development
Utilities

Distribution medium: RX50.

The MicroVMS operating system supports the MicroVAX I/II and VAX station I/II and is fully compatible with VAX/VMS. MicroVMS provides the same features as VAX/VMS on any other single VAX processor, with the exception of compatibility mode. MicroVMS is VAX/VMS repackaged for the microcomputer environment.

MicroVMS is suitable for both time-sharing and production environments. Time-sharing users can work interactively with the system and submit batch jobs. Processor-intensive, I/O-intensive, and real-time jobs, in any mix, perform well on MicroVMS. The system permits an absolute limit of 8192 concurrent processes. However, the amount of work supported at one time with good performance depends on the types of processing performed, as well as on the physical memory and secondary storage available.

The MicroVAX architecture is a subset of the full VAX architecture; consequently, some instructions are not implemented in the hardware. MicroVMS provides instruction emulation for all native VAX instruction not implemented in the MicroVAX hardware. That emulation is transparent to the user. However, compatibility mode is not available on MicroVAX.

Price: $2000 - $8000

MRRT-11 (Memory-Resident RT-11)

SPD Number: 12.17
Operating System: RT-11
Keywords: Device drivers/handlers
Application development

Distribution media: RL01, RL02, RX02, TU58 DECtape II cartridge.

This memory-resident run-time version of the RT-11 Version 4.0 operating system is designed to operate on a PDP-11/03, PDP-11/23, or SB11 microcomputer. MRRT-11 provides a subset of the RT-11 Single-Job (SJ) run-time environment for the execution of application programs on a memory-based computer. Although MRRT-11 provides support for reading and writing to an RT-11 mass-storage device, the system is not dependent on any mass-storage media for execution.

Application programs written in MACRO-11 or FORTRAN IV must be created, assembled or compiled, and linked on a host RT-11 system. The MRRT-11 BUILD utility program is then used to build an MRRT-11 run-time system consisting of DIGITAL-supplied monitor and handler files and user-supplied application programs and data files. The resulting MRRT-11 run-time system is then transported from an RT-11 host system to an MRRT-11 target system for execution either manually on a TU58 DECtape cartridge or by the MRRT-11 down-line load facility.

MRRT-11 requires an RT-11 V4.0 system for program development and system generation. Some software components in the MRRT-11 distribution kit run on the host, and some components run on the target system.

Price: Available upon request

MS™-DOS Operating System, Version 2.11-1

SPD Number: 50.07
Operating System: MS-DOS
Keywords: Personal computing
Commands
MS-DOS
Operating systems
Utilities

MS-DOS Operating System, Version 2.11-1, is a new version of the Version 2.05 operating system. This new version supports the "International Call System" and the "Mini Exchange as a Device Sharing" microprocessor-controlled switch.

The International Call System returns information such as the currency symbol, thousands and decimal separators, and the time and date formats for a specific country. The DIR command prints out time and date formats for a specific country. The Mini-Exchange uses commands from the Rainbow 100 computer to connect a total of eight devices in a 60-meter (200 foot) radius. These devices can be personal computers, printers, or modems.

MS-DOS Operating System, Version 2.11-1, contains the utility SETPORT which is an external command allowing the user to change the serial port parameters as well as DIGITAL serial printer parameters.

Trademark: MS is a trademark of Microsoft Corporation.

Price: Available upon request

P/OS Hard Disk, Version 3.0

SPD Number: 40.01
Operating System: P/OS
Keywords: Operating systems
Development tools
Programming tools
Personal computing

The Professional Operating System (P/OS) is a multi-tasking, resource sharing, real-time operating system with VAX and PDP-11 file structure compatibility. For technical or experienced personnel, there is a subset of the traditional DIGITAL Command Language (DCL). For less experienced operators, there is the P/OS menu system characterized by user-friendly menus, on-screen prompts, and on-line HELP.

P/OS is the primary operating system for the Professional's communications and graphics capabilities. P/OS V3.0 provides support for additional terminals and printers, the LN03 printer, and the DECtouch video screen. Additional features include PRO/GIDIS Graphics Tools; CORE Graphics Library; PROSE editor; and EDT text editor.

Price: $475

Professional CTS-300, Version 1.0, Commercial Transaction System

SPD Number: 40.37
Operating System: P/OS
Keywords: Application development
Communications
Data conversion
File transfer
Languages
Programming tools
Personal computing

Professional CTS-300 is a disk-based, single-user/multi-task system designed to support commercial applications on a Professional 300 series system. Professional CTS-300 applications are written in DIBOL.

Professional CTS-300 DIBOL is a high-level procedural language designed specifically for interactive business data processing. The language is based on the DIBOL Standards Organization's DIBOL-83 language definition, and is highly compatible with CTS-300 on PDP-11 systems and DIBOL-83 implementations on other operating systems, including VAX/VMS, RSX-11M-PLUS, Micro/RSX, RSTS/E, and P/OS. DIBOL-83 supports a set of language statements commonly referred to as structured constructs.

The DIBOL compiler reads a source program and produces an object module. The compiler is capable of producing a source listing with embedded diagnostics.

Professional CTS-300 is a packaged software system consisting of the RT-11 on the Professional operating system, a choice of two run-time systems, and a number of utilities. Since RT-11 on the Professional is included in this package, a Professional CTS-300 licensee can order any RT-11 on the Professional-dependent product without reordering a specific license for RT-11 on the Professional.

Price: $995

PRO/VENIX™ Base System Kit, Version 2.0

SPD Number: 40.56
Operating System: P/OS
Keywords: Personal computing
Application development
Development tools
Multi-tasking
Networking
Programming tools

PRO/VENIX Base System Kit, Version 2.0, is a native UNIX™ operating system for DIGITAL's Professional 350 and Professional 380 computers. PRO/VENIX Base System Kit is derived from AT&T™'s System V, release 2.0, UNIX.

PRO/VENIX Base System Kit is a multiple user, multi-tasking operating system supporting the Professional series hardware capabilities including bit-mapped video, floating point hardware, and memory management. In addition to the standard System V features such as hierarchical file system, mountable volumes, interprocess communication (except shared data which remains the same as previous PRO/VENIX releases), PRO/VENIX also includes such features as:

- Bourne and C shells command interpreters
- Berkeley enhancements including "vi," "termcaps" and "more"
- Record locking
- Code mapping

Trademark: VENIX is a trademark of VenturCom, Inc.

AT&T is a trademark of American Telephone and Telegraph.

UNIX is a trademark of AT&T Bell Laboratories

DIGITAL distributes this software under license from VenturCom, Inc. and the American Telephone and Telegraph Company.

Price: $495

RSTS/E

SPD Number: 13.01
Operating System: RSTS
Keywords: Device drivers/handlers
File management
Language processors
Networking

Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RK06, RK07, RL01, RL02.

This general-purpose system is used for interactive timesharing, batch processing, program development, and special-purpose applications. Through multiterminal services, up to 127 concurrent terminal users in local and remote locations can interact with application tasks. Tasks can share computational, storage, and input/output services provided by the RSTS/E system.

Programs can be written in several languages. BASIC-PLUS and MACRO-11 assembly language are included on RSTS/E systems.

The RSTS/E system comprises the RSTS/E monitor, device drivers, commonly used system programs (CUSPs), and standard software components. RSTS/E includes interactive timesharing; dynamic allocation of system resources; user and job privileges; batch-processing capabilities; extensive file processing, including file-sharing and protection mechanisms; magnetic tape processing; a terminal handler designed for interactive environments; shared common code; a software-maintained cache of frequently accessed disk data; intertask communication; disk file and device backup and restore utilities, as well as system operations and access control utilities; system reliability features and system maintenance tools; user command languages (DCL and CCL); system manager definition of user commands; lineprinter spooling; and Micro/RSTS subset generation.

Price: Available upon request

RSX-11M

SPD Number: 14.35
Operating System: RSX
Keywords: Development tools
File management
Operating systems
Real time

Distribution media: 9-track 800/1600 bpi magnetic tape, RK06, RK07, RL01, RL02.

This disk-based real-time operating system runs on any UNIBUS PDP-11 processor, the PDP-11/23, the PDP-11/23-PLUS, and the PDP-11/70. RSX-11M provides for the development and execution of multiple real-time tasks (program images), using a priority-structured event-driven scheduler. System generation allows you to continue the software for systems ranging from small 32 Kbyte systems to large 3840 Kbyte systems.

Program development and real-time tasks can execute concurrently in systems with at least 48 Kbytes of memory. The system's software priority levels enable you to compile/assemble, debug, install, and execute tasks without affecting real-time task response.

A multiuser program development facility is available for systems with a recommended minimum of 64 Kbytes of memory. LOGIN/LOGOUT, password protection, device-access protection, a round-robin scheduler (running under the real-time executive), and concurrent execution of equal-priority tasks through executive-level swapping are provided. All systems have the MCR command interface. Mapped systems can select the easy-to-use DIGITAL Command Language (DCL), with MCR or DCL selectable at each terminal.

Tasks can be written in MACRO-11 assembly language or in optionally available FORTRAN-77, COBOL-81, CORAL-66, and BASIC-PLUS-2. Shareable libraries and system support for user-created libraries are provided. The EDI and EDT editors, utilities, symbol cross-reference, interactive debugger, and task memory dump facilities are provided to assist task development and checkout.

The RSX-11M file system provides automatic space allocation and file structures for all block-structured devices. Features include file protection, device independence, and logical device assignment.

Price: $171 - $7250

RSX-11M-PLUS

SPD Number: 14.70
Operating System: RSX
Keywords: Development tools
File management
Operating systems
Real time

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02.

This disk-based multiuser operating system provides a multiprogramming environment using a priority-structured, event-driven scheduler. This system is a superset of the RSX-11M operating system, designed to maximize performance of large memory and general-purpose PDP-11 processors.

Program development, real-time tasks, and batch streams can execute concurrently. The system's software priority levels enable you to compile/assemble, debug, install and execute tasks, and run batch streams without affecting real-time response.

The system recognizes 250 software priority levels. The user-specified task priority determines the task's eligibility to execute. A task either can be fixed in a partition to ensure immediate execution when activated or can reside on disk while the task is dormant, making memory available to other tasks. Task checkpointing permits tasks to be displaced from memory so that higher-priority, nonresident tasks can execute.

Memory sizes from 256 Kbytes to 3840 Kbytes are supported. Memory is logically divided into partitions in which tasks are loaded and executed. The system controls the placement of tasks within a partition, and automatic memory compaction minimizes memory fragmentation within a partition.

A multiuser program-development facility is provided. The traditional MCR command interface, the easy-to-use DIGITAL Command Language (DCL), and user-written command interpreters are supported.

Tasks can be written in MACRO-11 assembly language or in optionally available FORTRAN-77, COBOL-81, DIBOL-83, Pascal, and BASIC. User libraries and shareable libraries are supported.

An extensive set of utilities is provided to facilitate file and system maintenance, error analysis, and program debugging. The RSX EDI line editor and EDT, the DIGITAL standard text editor, are supplied.

Price: Available upon request

RSX-11S

SPD Number: 09.21
Operating System: RSX
Keywords: Database management
File management
Programming tools

Distribution media: 9-track 800/1600 bpi magnetic tape, RK06, RK07, RL01, RL02.

This memory-based real-time operating system for a PDP-11 processor with a minimum of 16 Kbytes of memory is a fully compatible subset of the RSX-11M disk-based operating system. RSX-11S is designed, however, for the run-time execution of memory-resident application programs and requires the support of a disk-based host system for system generation and program development.

The I/O driver interfaces are identical. Device drivers written for either system can execute on both systems. Any application program that executes under RSX-11S will execute under RSX-11M without change, following a relink of the object program.

RSX-11S has most of the features and capability of the RSX-11M system and supports all the peripheral devices that are supported under RSX-11M, plus CPU options, such as floating-point processors, parity memory, and memory management.

Price: Available upon request

RT-11

SPD Number: 12.01
Operating System: RT-11
Keywords: Debugging
Development tools
File management
Networking

Distribution media: 9-track 800 bpi magnetic tape, RK05, RL01, RL02, RX01, RX02, RX50.

This single-user real-time operating system is small, fast, and efficient and has been used as the base for many applications in business, commercial, and scientific environments. Capable of both real-time and data processing, RT-11 also offers system utilities to facilitate interactive program development.

The RT-11 operating system offers the following configurations:

- The Single Job (SJ) Monitor enables one job at a time to execute in memory.
- The Foreground/Background (FB) Monitor operates a foreground and a background job. The real-time function is accomplished in the foreground, which generally has priority on system resources. Functions that do not have critical response time requirements, such as program development, are accomplished in the background, which operates whenever the foreground job cannot run.
- The Extended Memory (XM) Monitor is a version of the FB monitor for supporting systems with more than 64 Kbytes of memory.

Price: Available upon request

RT-11 on the Professional, Version 5.3, Single-User Operating System

SPD Number: 40.31
Operating System: P/OS
Keywords: Application development
Communications
Data conversion
Debugging
Development tools
File transfer
Languages
Programming tools
Personal computing

RT-11 on the Professional is a single-user, real-time operating system designed to operate on the Professional 300 series. Small, fast and efficient, it is used as the base for many applications in a variety of busi-

ness, commercial and scientific environments. Capable of both real-time and data processing, RT-11 on the Professional also offers a full range of system utilities to facilitate interactive program development.

The RT-11 on the Professional offers the following run-time environments:

- Foreground/Background (FB) Monitor - Provides for the simultaneous execution of up to seven jobs in the foreground and a background job. The real-time function is accomplished in the foreground, which generally has priority on system resources. Functions that do not have critical response time requirements, such as program development, are accomplished in the background, which operates whenever the jobs in foreground cannot run.
- Extended Memory (XM) Monitor - Has the features of the FB monitor and supports systems with more than 64 Kbytes of memory. XM allows programs to extend their size to the full PDP-11 virtual address space of 64 Kbytes. By program control, an RT-11 on the Professional job can allocate and use all available physical memory not used by the monitor or other jobs.

Price: $550

ULTRIX-11

SPD Number: 16.51
Operating System: ULTRIX-11
Keywords: Debugging
File management
Programming tools

Distribution media: 9-track 800/1600 bpi magnetic tape, RC25, RL02, RX50.

This native UNIX™ system, based on AT&T's Version 7 UNIX Time-Sharing System, Seventh edition, is a general-purpose, multiuser, interactive operating system that supports the DIGITAL memory-managed PDP-11 processors and has drivers for most of DIGITAL's peripherals. ULTRIX-11 features include those found in Version 7 UNIX - a hierarchical file system with demountable volumes, compatible device and interprocess I/O, asynchronous processes, a user-selected system command language, more than 100 subsystems, and portability among processors.

ULTRIX-11 also features new hardware support; a kernel floating-point hardware simulator; C shell and job control, VI screen editor, and a source code control system; improved performance, maintainability, and reliability; sublicensing for object code; repackaged technical documentation; and installation and configuration without source code.

Trademark: UNIX is a trademark of AT&T Bell Laboratories.

Price: $800 - $2000

ULTRIX-32

SPD Number: 26.40
Operating System: ULTRIX-32
Keywords: Debugging
File management
Programming tools

Memory required: 8MB. Distribution media: 9-track 1600 bpi magnetic tape, RA60, RK07, RL02.

This native UNIX™ operating system for VAX hardware is derived from the fourth Berkeley software distribution (4 BSD), Version 4.2. Developed by the Computer Systems Research Group of the Department of Electrical Engineering and Computer Sciences at the University of California at Berkeley, 4 BSD is an augmented version of Bell Laboratories' UNIX 32V system for VAX hardware. The Berkeley enhancements to UNIX 32V include support for the VAX virtual architecture and a set of functional additions to the basic Bell Laboratories UNIX product.

This interactive, demand-paged, virtual memory, time-sharing operating system has a hierarchical file system with demountable volumes, compatible device and interprocess I/O, asynchronous processes, a user-selectable system command language, disk quotas, job quotas, more than 200 subsystems, and a high degree of portability among processors.

Along with the functionality of the Berkeley 4 BSD system, DIGITAL has added a wide range of support service options, repackaged technical documentation, installation and configuration without source code, and UNIX sublicensing for object code directly from DIGITAL.

Trademark: UNIX is a trademark of AT&T Bell Laboratories.

Price: $12,000 - $15,500

ULTRIX-32m

SPD Number: 28.04
Operating System: ULTRIX-32m
Keywords: File management
Programming tools

Distribution medium: RX50.

This native UNIX™-derived operating system for MicroVAX hardware is derived from the fourth Berkeley software distribution (4 BSD), Version 4.2, developed by the Computer Systems Research Group of the Department of Electrical Engineering and Computer Sciences at the University of California at Berkeley. The ULTRIX-32m interactive, demand-paged, virtual-memory, time-sharing operating system has a hierarchical file system, compatible device and interprocess I/O, asynchronous processes, disk quotas, job quotas, and a user-selectable system command language.

ULTRIX-32m is a repackaged and functional subset of the Berkeley 4 BSD system and of DIGITAL's ULTRIX-32 product derived from 4 BSD for larger VAX hardware. DIGITAL has added automatic installation procedures to make the system user installable, repackaged the technical documentation, and provided full support service offerings and UNIX object sublicensing directly from DIGITAL.

Trademark: UNIX is a trademark of AT&T Bell Laboratories.

Price: $1000 - $3000

VAX-11 RSX, Version 2.1

SPD Number: 26.73
Operating System: VMS
Keywords: VAX-11 RSX
RSX
RSX emulator
MCR
Software emulator
Compatability mode

VAX-11 RSX is an RSX emulator which executes on all VAX/VMS, MicroVAX II/MicroVMS, and VAXstation II/MicroVMS systems. It runs in compatibility mode on processors that support a PDP-11 instruction set subset in hardware or microcode and it also runs on certain processors without this support by providing its own software emulation of the same PDP-11 instruction set subset. Special capabilities enable PDP-11 users to develop programs for execution in any of the following environments:

- VAX/VMS capability mode (hardware-supported or software-emulated)
- MicroVAX II/MicroVMS capability mode (software-emulated)
- VAXstation II/MicroVMS capability mode (software-emulated)
- RSX-11M, RSX-11M-PLUS, RSX-11S, and Micro/RSX
- P/OS

Price: $2000 - $3000

VAXmate Operating Environment, Version 1.0

SPD Number: X0.32
Operating System: MS™-DOS V3.10
Keywords: Communications
Windows
MS-Windows
Network/server
Terminal emulation
Services
MS-DOS
MS-NET

The VAXmate Operating Environment is a complete set of VAXmate system and server software, designed especially for the unique, integrated desktop computing environment offered by the Personal Computing Systems Architecture (PCSA). This set of software allows VAXmate computers to be connected to VAX, MicroVAX, or other VAXmate computers in a DECnet network; uses selected facilities and services of those systems; and accesses information and services contained on other DIGITAL systems and equipment on the DECnet network.

The individual software components of the VAXmate Operating Environment are:

- MS-DOS V3.10 operating system
- MS-Windows applications interface
- Network/Server software
- VT220/240 terminal emulator package
- On-line User Information System

NOTE

When a VAXmate is used as a server system, it must be dedicated entirely to that purpose.

The VAXmate Operating Environment is available in three configurations:

- VAXmate Services for MS-DOS - VAXmate systems are connected in a network that offers server-based resource- and data-sharing. One VAXmate with an Expansion Box acts as a dedicated server. All users have equal access to the Winchester disk and the printing capabilities of a shared printer, in addition to the "personal" processing power provided by the VAXmates.
- MicroVAX Services for MS-DOS - The MicroVAX, acting as the server, can support a much larger number of users. The MicroVAX as a server will afford the user access to VMS as well as Industry Standard applications. The MicroVAX will also provide a high level of system management and control capabilities, such as different levels of file protection and security.

- VAX/VMS Services for MS-DOS - Represents an organization-wide network and illustrates DIGITAL's ability to provide integration at every level of computing.

Trademark: MS is a trademark of Microsoft Corporation.

Price: Available upon request

VAX/VMS

SPD Number: 25.01
Operating System: VMS
Keywords: Database management
File management
Programming tools
Real time

Distribution media: 9-track 1600 bpi magnetic tape, RA60, RC25, RL02, RX01.

The VAX/VMS operating system supports all VAX computers, in both time-sharing and production environments. Time-sharing users can work interactively with the system and can submit batch jobs. Any combination of processor-intensive, I/O-intensive, large-memory, and real-time jobs performs well on VAX/VMS. The system permits an absolute limit of 8192 concurrent processes. However, the amount of work supported at one time depends on the types of processing as well as on the physical memory and secondary storage. The practical limit, with moderate work loads, exceeds 100 concurrent users for a large-scale system.

VAX/VMS also provides text processing; a personal mail facility that permits a user to read, send, reply, forward, print, file, and edit messages at the terminal; a phone facility with networking capability (optional DECnet-VAX license is required for multinode operation); disk I/O to create and process sequential character files; and command-level programming to create special files called command procedures.

Price: $10,000

Performance Tools and Diagnostics

DIGITAL provides software to monitor and analyze VAX systems. Monitoring systems on an ongoing basis can help avoid bottlenecks, assist in fine-tuning the system, and provide data for capacity planning.

VAX Software Performance Monitor (SPM) collects and reports on system resources such as CPU, disk, and memory. This data is valuable for balancing resource usage and for planning future hardware growth.

NMCC/DECnet Monitor

SPD Number: 26.91
Operating System: VMS, MicroVMS
Keywords: Network monitoring
Data collection
Statistics

NMCC/DECnet Monitor is a network monitoring system for Phase III and IV DECnet network nodes. NMCC/DECnet Monitor collects and monitors data concerning the DECnet network, and assists the user to store, distribute, analyze, and evaluate the data into useful and comprehensible information. The data is presented either as a screen display or as a printed report. The central component of NMCC/DECnet Monitor is the Kernel, a data acquisition subsystem, which periodically polls nodes within the network to obtain status, characteristics, and traffic and error counters. The network manager has full control over which nodes are polled, as well as the polling rate. The Kernel processes the raw data and creates a log file of statistical data which is then available to the NMCC/DECnet Reports subsystem for the production of network reports.

The User Interface subsystem provides an easy-to-use command interface to the NMCC/DECnet Monitor. It provides on-line graphic and lexical video displays of selected error statistics, traffic statistics, and status information. The displays are designed hierarchically so that the user can select the network components, information types, and levels of detail in a consistent and easy-to-use manner. The graphic displays include histograms, linear scales, and a network map. NMCC/DECnet Monitor allows multiple users to monitor different network components simultaneously and gather statistics about the network.

The NMCC/DECnet Monitor History Files and Summary Files are explained in the NMCC/DECnet Monitor User Documentation. These files provide information regarding the operation and performance of the network and can be accessed by user-written application programs and VAX DATATRIEVE procedures.

The Network Profile and Customer Support Plan covering all intended network nodes and their support must be prepared jointly by DIGITAL and the customer.

Price: $13,000

NMCC/VAX ETHERnim

SPD Number: 26.96
Operating System: VAX/VMS
Keywords: Data collection
Path-testing
Remote node sizing

VAX ETHERnim is a network maintenance application program for Ethernet, which uses Phase IV DECnet software on a system configured as a DECnet router. Full functionality of VAX ETHERnim is achieved by having DECnet software and remote test command files in target nodes. VAX ETHERnim is designed to test the communications path through Ethernet protocol and DECnet. VAX ETHERnim also has the ability to gather system information for its database from remote VMS and RSX nodes by invoking test probes (remote command files).

VAX ETHERnim will enhance the network manager's ability to understand the status and condition of the Ethernet on which the host system resides. VAX ETHERnim recognizes non-DECnet Ethernet addresses, and gives the network manager the capability of maintaining a great deal of information about each node via an editable database.

Functions:

- Automatically builds a permanent database containing basic information about each node VAX ETHERnim detects directly connected to the Ethernet cable.
- Provides a means of path-testing to ISO levels I and II to all nodes on the Ethernet, and to DNA network application and user layers for any nodes running DECnet phase IV on the Ethernet. The results of this path-testing are retained during each VAX ETHERnim session, and are also recorded in a session history file.
- VAX ETHERnim provides a means of remote node sizing to VMS DECnet nodes on the Ethernet. This provides the VAX ETHERnim database with additional information about the target node. This feature of VAX ETHERnim requires access to target software installed on the receiving node; the software is included as a part of the VAX ETHERnim distribution.

VAX ETHERnim can be operated from local terminals (VT125, VT240, VT241) that can take advantage of a special User Interface featuring graphic representations of the network under test, using ReGIS graphics.

Price: $7,000 - $21,000

Peripheral Processor Tool Kit Micro/RSX

SPD Number: 18.48
Operating System: Micro/RSX
Keywords: Debugging
Development tools
Device drivers/handlers
Programming tools

The Peripheral Processor Tool Kit supports use of KXT11-CA peripheral processors as slave processors in LSI-11 systems running Micro/RSX in the arbiter CPU. The application on the KXT11-CA(s) may be either MicroPower/Pascal-Micro/RSX based or standalone MACRO-11. The tool kit facilitates loading and debugging KXT11-CA applications from Micro/RSX. The software also provides a driver for communication over the LSI-11 bus between MicroPower application software in the KXT11-CA and the Micro/RSX application.

NOTE

Micro/RSX is not supported on the KXT11-CA itself.

The KXT11-CA is designed to off-load traditional single processor LSI-11 systems. Typical uses of the peripheral processor are applications utilizing serial or parallel I/O in real-time environments.

Development of the peripheral processor on-board application can be done with the MicroPower/Pascal-Micro/RSX product. MicroPower/Pascal-Micro/RSX provides a complete software environment for the development of applications in either Pascal or MACRO-11 assembler language.

MicroPower/Pascal-Micro/RSX provides program building utilities and symbolic debugging aids for the developer. Furthermore, it supplies a modular multi-tasking run-time executive, drivers for KXT11-CA on-board I/O devices, and a driver for communication with the Micro/RSX application. While Micropower/Pascal-Micro/RSX is the recommended development tool for KXT11-CA applications, standalone MACRO-11 applications are not precluded.

Components:

- KXT11-CA load utility
- KXT11-CA driver

Price: $400 - $540

SPM (Software Performance Monitor), Version 2.2

SPD Number: S0.16
Operating System: MicroVMS, VMS
Keywords: Data collection
Operations
Statistics

VAX SPM is an integrated performance monitoring and analysis package useful for systems tuning, applications tuning, and capacity planning on VMS systems and VAXclusters. A system manager can use VAX SPM to easily collect and archive a complete set of performance statistics into one central performance database. A systems troubleshooter can then replay problem scenarios by retrieving data from the performance database. Or, an MIS manager can extract hardware usage statistics from the database to generate reports for capacity-planning budget decisions. In addition, an applications programmer can extract data that pinpoints performance problems in languages such as FORTRAN, COBOL, BASIC, and more.

The disk analyzer in VAX SPM helps the system manager identify disks that are fragmented and need volume compression. VAX SPM measures both time usage and space usage of disks for a complete picture of volume utilization.

VAX SPM's powerful report generator provides resource versus time graphs by minute, hour, day, or a customer-defined unit. The report statistics quickly expose bottleneck resources as well as show long-term trends useful for extrapolation and what-if analyses.

A system manager can use the tracer component of VAX SPM to write a custom performance monitor. That is useful when writing device drivers, communications and network software, and user-written system services that need timing analyses.

Finally, the VAX SPM chargeback utility inputs VMS accounting data and outputs a billing report showing resource usages and charges.

Price: $1200 - $18,000

SPM-11M-PLUS (Software Performance Monitor), Version 2.1

SPD Number: S0.14
Operating System: RSX
Keywords: Data collection
Operations
Report generator
Statistics

Distribution media: 9-track 800/1600 bpi magnetic tape, RL02.

This high-resolution, low-overhead, event-driven performance monitor collects data both at the system level and for individual tasks. The SPM-11M-PLUS monitor runs on the RSX-11M-PLUS operating system and views the system as a collection of queued resources. Connection points are inserted into the RSX-11M-PLUS executive where the executive enqueues, dequeues, and completes resource requests, allowing usage and waiting times to be measured for the following hardware and software resources: CPU, memory, I/O devices, file system, and task loader.

The monitor provides task work-load and system-wide resource metrics and features power data reduction and a report-generation capability.

Price: $900 - $8000

VAX 8600 Diagnostic Set

SPD Number: 26.82
Operating System: VMS
Keywords: Debugging
Diagnostics

Distribution medium: RL02.

This package of programs allows users to maintain a VAX 8600 central processor unit (CPU) and standard VAX 8600 peripheral devices. The set includes micro- and macrodiagnostic programs required to fully support diagnosis of a VAX 8600 system.

The microdiagnostic programs detect and isolate faults at the module level in the CPU, floating point, and memory. The microdiagnostic monitor and a number of test overlays achieve module-level fault detection and isolation. Microdiagnostics are executable with the microdiagnostic monitor running in the VAX 8600 LSI/11 console. The console disks provide storage for the microdiagnostic test overlays. Microdiagnostic tests are organized into a bootstrapping sequence for testing the console interface, data path hardware, SBI-Cache-Translation Buffer, I-stream Buffer, SBI, and Memory Controller, arrays, and Floating-Point Accelerator (FPA). Detected faults result in error typeouts that indicate the smallest set of modules to which the program can isolate a failure.

The macrodiagnostic programs provide fault detection and isolation in the VAX 8600 CPU and standard options.

Price: Available upon request

VAX-11/725/730 Diagnostic Set

SPD Number: 25.93
Operating System: VMS
Keywords: Diagnostics

This package of programs includes micro- and macrodiagnostic programs required to support Customer Runable Diagnostics (CRDs). The microdiagnostic programs detect and isolate faults at the module level within the CPU, Floating Point Accelerator (FPA), Integrated Disk Controller (IDC), and memory. A microdiagnostic monitor and test overlays achieve module-level fault isolation. The macrodiagnostic programs detect and isolate faults within the VAX-11/725/730 and standard options. The Customer Runable Diagnostics (CRD) feature is a simplified operator interface that sequentially runs the micro- and macrodiagnostic programs.

Price: Available upon request

VAX-11/730 Microdiagnostics

SPD Number: 25.92
Operating System: VMS
Keywords: Debugging
Diagnostics

Distribution medium: TU58 DECtape II cartridge.

This set of software programs allows users to maintain a VAX-11/730 Central Processor Unit (CPU). The programs isolate and detect faults at the module level within the CPU, Floating Point Accelerator (FPA), Integrated Disk Controller (IDC), and memory. A microdiagnostic monitor and a number of test overlays achieve module-level fault isolation.

Price: Available upon request

VAX-11/750 Basic Diagnostic Set

SPD Number: 25.91
Operating System: VMS
Keywords: Debugging
Diagnostics

Distribution media: 9-track 1600 bpi magnetic tape, TU58 DECtape II cartridge.

This package of programs allows users to independently maintain standard VAX-11/750 system hardware and peripheral devices. The package contains three components. The VAX Diagnostic Supervisor (VDS) supplies diagnostic and operator services (loading, starting, and control)

as a standalone controller or as a layered program of VAX/VMS. Diagnostics are functional-level or repair-level programs that run under control of VDS. Functional-level tests run in standalone mode or with VAX/VMS. Repair-level programs run only in standalone mode. The Exerciser directs the supervisor to selected functional tests in a specified sequence and runs only under VAX/VMS.

Supporting programs included in this package are device drivers.

Price: Available upon request

VAX-11/750 Diagnostic Set

SPD Number: 26.42
Operating System: VMS
Keywords: Debugging
Diagnostics

Distribution medium: TU58 DECtape II cartridge.

This package of programs allows users to maintain a VAX-11/750 Central Processor Unit (CPU) and standard VAX-11/750 peripheral devices. The set includes micro- and macrodiagnostic programs required to fully support diagnosis on VAX-11/750 systems.

The microdiagnostic programs detect and isolate faults at the module level within the CPU and memory. The microdiagnostic monitor and a number of test overlays achieve module-level fault detection and isolation.

At the start of the microdiagnostic program, a ROM-based TU58 driver routine loads the microdiagnostic monitor from a TU58 tape cartridge into RAM memory located on the VAX-11/750 diagnostic module, LOOO6-YA. Then the program initialization routine begins. That routine controls program flow, initializes parameters, and invokes the TU58 driver routine to automatically load each of a series of overlays. The microdiagnostic tests are organized to sequentially test the data path hardware, CMI-translation buffer-cache, I-stream buffer, CMI, and the memory controller and first two arrays. Detected faults result in error typeouts indicating the lowest level of modules and/or gate arrays to which the program can isolate the failure.

The macrodiagnostic programs provide fault detection and isolation within the VAX-11/750 CPU and standard options.

Price: Available on request

VAX-11/750 Microdiagnostics

SPD Number: 25.61
Operating System: VMS
Keywords: Debugging
Diagnostics

Distribution medium: TU58 DECtape II cartridge.

This set of software programs is used with the VAX-11/750 Self-Maintenance Microdiagnostics Kit. The extensions of the basic VAX-11/750 diagnostics help maintain and repair the CPU and memory by detecting microlevel faults. VAX-11/750 Microdiagnostics contains the microdiagnostic monitor and test overlays that exercise a portion of the CPU or memory.

At the start of the microdiagnostic program, a ROM-based TU58 driver routine loads the microdiagnostic monitor from the TU58 tape cartridge into RAM memory located on the VAX-11/750 diagnostic module. Then the program initialization routine begins. That routine controls program flow, initializes parameters, and invokes the TU58 driver routine to automatically load each of a series of overlays. The microdiagnostic tests are organized sequentially from the data path hardware, to CMI-translation buffer-cache, to I-stream buffer, to CMI, and to the memory controller and arrays. Detected faults result in error messages that the program locates to the lowest level of modules and/or gate arrays.

Price: Available upon request

VAX-11/780 Basic Diagnostic Set

SPD Number: 25.60
Operating System: VMS
Keywords: Debugging
Diagnostics

Distribution media: 9-track 1600 bpi magnetic tape, RX01.

This package of programs supports customer-performed maintenance of standard VAX-11/780 system hardware and includes diagnostics to cover both the central processing unit options and all standard 11/780 peripherals.

The package contains three components. The VAX Diagnostic Supervisor (VDS) supplies diagnostic and operator services (loading, starting, and control) as a standalone controller or as a layered program of VAX/VMS. Diagnostics are functional-level or repair-level programs that run under control of VDS. Functional-level tests run in standalone mode or with VAX/VMS. Repair-level programs run only in standalone mode. The exerciser directs the supervisor to selected functional tests in a specified sequence and runs only under VAX/VMS.

Supporting programs included in this package are console, microcode, boots, and device drivers.

Price: Available upon request

VAX-11/780 Diagnostic Set

SPD Number: 26.41
Operating System: VMS
Keywords: Debugging
Diagnostics

Distribution media: 9-track 1600 bpi magnetic tape, RX01.

This package of programs allows users to maintain a VAX-11/780 Central Processor Unit (CPU) and standard VAX-11/780 peripheral devices. The set includes micro- and macrodiagnostic programs required to fully support diagnosis on VAX-11/780 systems.

The microdiagnostic programs detect and isolate faults at the module level within the CPU, floating point, and memory. The microdiagnostic monitor and a number of test overlays achieve module-level fault detection and isolation. Microdiagnostics are executable with the microdiagnostic monitor running in the VAX-11/780 LSI-11 console. The console disks provide storage for the microdiagnostic test overlays. Microdiagnostic tests are organized into a bootstrapping sequence for testing the console interface, data path hardware, SBI-Cache-Translation Buffer, I-stream Buffer, SBI, and Memory Controller, arrays, and Floating-Point Accelerator (FPA). All detected faults result in error typeouts that indicate the smallest set of modules to which the program can isolate a failure.

The macrodiagnostic programs provide fault detection and isolation within the VAX-11/780 CPU and standard options.

Price: Available upon request

VAX-11/780 Diagnostics Extended

SPD Number: 25.06
Operating System: VMS
Keywords: Data collection
Debugging
Diagnostics

Distribution medium: RX01.

This set of programs allows a customer to enhance the self-maintenance of the system. The extensions to the standard diagnostics are called CPU microdiagnostics.

Price: $230

VAX-11/785 Diagnostic Set

SPD Number: 26.81
Operating System: VMS
Keywords: Debugging
Diagnostics

Distribution media: 9-track 1600 bpi magnetic tape, RX01.

This package of programs allows users to maintain a VAX-11/785 central processor unit (CPU) and standard VAX-11/785 peripheral devices. The set includes micro- and macrodiagnostic programs required to fully support diagnosis of a VAX-11/785 system.

The microdiagnostic programs detect and isolate faults at the module level in the CPU, floating point, and memory. The microdiagnostic monitor and a number of test overlays achieve module-level fault detection and isolation. Microdiagnostics are executable with the microdiagnostic monitor running in the VAX-11/785 LSI/11 console. The console disks provide storage for the microdiagnostic test overlays. Microdiagnostic tests are organized into a bootstrapping sequence for testing the console interface, data path hardware, SBI Cache-Translation Buffer, I-stream Buffer, SBI, and Memory Controller, arrays, and Floating-Point Accelerator (FPA). Detected faults result in error typeouts that indicate the smallest set of modules to which the program can isolate a failure.

The macrodiagnostic programs provide fault detection and isolation within the VAX-11/785 CPU and standard options.

Price: Available upon request

VAXcluster Console System, Version 1.0

SPD Number: 27.46
Operating System: MicroVMS
Keywords: VCS
Console data logging
VAXclusters

VAXcluster Console System (VCS) software provides a central point for the coordination of VAXcluster system console services and for the logging of all console data received from connected VAXcluster system nodes. It is a tool intended for managers and/or operators of VAXcluster systems.

VCS provides support for the management of up to 16 VAXcluster system console lines connected to either VAX or HSC nodes. VCS V1.0 supports any VAX processor or HSC which can be configured as a VAXcluster system node. All data received from console lines connected to VCS are logged on a disk that is part of the MicroVAX system on which VCS is running. VCS has three interfaces:

- The MONITOR interface - uses a multi-window display format and requires the use of a VT100-compatible terminal (with Advanced Video Option).
- The CONNECT interface - logically connects the user's terminal to a single VAXcluster system node.
- The RECORD interface - selects data received by VCS from one or more specified VAXcluster system nodes selected at the start up of this interface and outputs it to the specified terminal.

Features:

- Support for up to 16 VAXcluster system nodes, either VAX/VMS or HSC. The maximum supported console line speed is 9600 baud.
- All data received from connected VAXcluster system nodes is logged by VCS and identified by source node name and the time received by VCS.
- A user can connect to the console port of any node in the VAXcluster system from a single terminal running VCS.
- The number of interface processes on VCS is not explicitly limited by the software.
- Data received can be directed to a terminal specified by the VCS RECORD interface.
- Command lines can be sent simultaneously to selected nodes in the VAXcluster system using the OUTPUT command with the MONITOR interface.

- VCS scans data received from connected VAXcluster system nodes and compares single line messages with text strings contained in a scan file. The sample scan files, which are supplied with VCS for VAX/VMS and HSC nodes, can be modified to scan for text strings defined by the customer.

Price: $13,000

VAXsim (VAX System Integrity Monitor), Version 1.1

SPD Number: 26.62
Operating System: VAX/VMS
Keywords: Troubleshooting
Error information
Error evaluation

VAXsim allows system managers to monitor the condition of their VAX systems; standalone, clustered, or networked. VAXsim provides access to VMS error log data, but VAXsim information is on-line, easy-to-use, and immediately available.

VAXsim enables system managers to troubleshoot their VAX systems quickly and easily. Capabilities include maintenance of a cumulative on-line summary of error information for immediate access; hierarchical graphics displays that highlight problem areas; remote access capabilities for simultaneous monitoring of several systems on a single screen; a state-of-the-art intelligent user interface for automatically correcting most common typographical errors; an automatic operator notification when an error rate moves out of the normal range; and a self-regulating error evaluation that compares a device's performance to its own history.

Price: $2640 - $12,000

Text Management

CTS-300 DECtype

SPD Number: 12.71
Operating System: CTS-300
Keywords: Printing
Word processing

This DECmate-style word processor provides most of the features of the DECmate and WPS-8. Experienced WPS or DECmate users can begin using CTS-300 DECtype immediately. CTS-300 DECtype supports the WPS keyboard so that CTS-300 DECtype users can execute most of the editing functions just as they would when using DECmate or WPS-8. CTS-300 DECtype documentation is organized and formatted to closely resemble WPS documentation. Users will be able to quickly learn any features unique to CTS-300 DECtype.

CTS-300 DECtype permits concurrent word and data processing in a multiuser environment that extends a data processing system with word processing capabilities. The CTS-300 DECtype editor creates and maintains documents stored on the full range of disk devices supported by CTS-300/VMS. Storage available for documents will vary, depending on other data storage requirements on the same disk medium.

CTS-300 DECtype features center screen editing, allowing a view of preceding and following text, and document indexing. The system prepares documents through menu-driven operation and easy-to-learn commands, has extensive editing capabilities, and supports printer utilities.

Price: Available upon request

DECmate/WPS DECspell Verifier/Corrector, Version 2.1

SPD Number: 60.30
Operating System: DECmate/WPS
Keywords: Dictionary
Spelling checker

DECmate/WPS DECspell is a single-user, floppy disk-based spelling verification and correction package that runs on DECmate II and DECmate III systems with DECmate/WPS, Version 2.1. DECspell automatically scrolls through a document, verifying words against its dictionary and against an optional personal dictionary. DECspell needs a DECmate II with an APU or XPU option board or a DECmate III with an APU option board. DECmate/WPS DECspell is available only on an RX50 floppy diskette, but can be run on a hard disk.

DECspell has a master lexicon of more than 70,000 words in American English. (The American English Lexicon is based on the Houghton Mifflin database of the *American Heritage Dictionary*.)

Features:

- The Verifier/Corrector displays a menu at the bottom of the screen. The choices are: replace a word, edit the line, ignore the unfound word, add word to the personal dictionary, pass over the unfound word, finish the Verifier/Corrector session, overview of DECspell, HELP key, and provide more alternative words.
- The Personal Dictionary - Allows users to create their own dictionaries to supplement the Houghton Mifflin database.

Price: $295

DECmate/WPS, Version 2.1

SPD Number: 60.02
Operating System: DECmate/WPS
Keywords: List processing
Word processing

DECmate/WPS is a single-user word processing software package for DECmate II and DECmate III systems. DECmate/WPS is designed for office and business use, combining text editing with other advanced features for office automation. This menu-driven software lets the user create and update documents stored on hard disk or diskettes. The user can store up to 200 documents of various lengths, or up to a total of 150 pages (approximately 2000 characters per page) on a single 5-1/4 inch double-density document diskette.

Editing capabilities make it easy to correct text without completely retyping a new draft. Documents can be queued to a letter-quality, draft, or LN03 printer. The user can print and edit different documents simultaneously.

NOTE

DECmate WPS does not contain DECmate/WPS DECspell. DECmate/WPS DECspell can be purchased separately. Refer to SPD 60.30.

Basic features:

- Responsive menu-driven operation
- Easy-to-learn instructions
- Full editing features, including:
  - Cut-and-paste text
  - Boilerplate insert from library files
  - User-defined shorthand expressions for most operations
  - Delete by word or character, rubout by word or character

  - Selectable status line showing line, page number, column number, document name, communication and printer status, and bottom line ruler display
  - Headers and footers automatically placed at the top and bottom of every page in a document when printed
  - Quick re-wrap of paragraphs and selected text
  - Transposition key
  - Top row function keys for commonly used operations
  - Required space to hold two or more words together on a line
  - Underlining, bolding, and uppercasing as automatic functions, with the ability to reverse the functions
  - Global search-and-replace, allowing the user to locate and replace a given phrase, carriage return, or tab with other text throughout a document
  - HELP messages to remind the user of what a function does
  - Word counter to allow users to determine the number of words in a document or region
- Full control of tabs, margins, and justification with:
  - Automatic centering of text on a line
  - Decimal and left- and right-adjusted tabs
  - Indent tab function allows users to create word-wrap indents without entering ruler editor
  - Semiautomatic hyphenation
  - Wide ruler support displaying a maximum of 238 characters either in 80-column mode or in compressed 132-column mode
  - Ten rulers stored by the user for immediate recall
  - Unlimited rulers allowed in a document
  - Go-to-ruler allowing convenient rejustification of edited text
  - Delete ruler to easily remove current ruler
- Full pagination capability
- Automatic footnote generation
- 100 user-defined keys for predetermined repetitive operations UDKs can be edited, indexed, printed, and moved intact to another system diskette.
- Date/time and currency symbol choices

Price: Available upon request

DECtype

SPD Number: 26.56
Operating System: MicroVMS, VMS
Keywords: Printing
Word processing

Distribution media: RX01, RX50, TU58 DECtape II cartridge.

This easy-to-learn DECmate-style word processor provides most of the features of DECmate and WPS-8. Experienced WPS or DECmate users can begin using DECtype immediately. Because DECtype supports the WPS keyboard, users can execute most of the editing functions just as they would when using DECmate or WPS-8.

DECtype permits concurrent word and data processing in a multiuser environment that extends a data processing system with word processing capabilities. The DECtype editor creates and maintains documents stored on the full range of disk devices supported by VMS. Storage available for documents will vary, depending on other data storage requirements on the same disk media.

Price: Available upon request

DECtype Word Processing Application

SPD Number: 30.32
Operating System: CTS-300, VMS
Keywords: Utilities
Word processing

Distribution media: RK07, RL01, RL02, RX01, RX02, TU58 DECtape II cartridge.

DECtype permits concurrent word and data processing in a multiuser environment. This feature extends the data processing system with word processing capabilities.

The DECtype editor creates and maintains documents stored on the full range of disk devices supported by CTS-300 and VAX/VMS. Storage available for documents will vary, depending on other data storage requirements on the same disk media.

Price: $1200 - $2000

EDE (External Document Exchange)

SPD Number: 26.37
Operating System: VMS
Keywords: Data conversion
File transfer
Menu handlers

Distribution media: 9-track 1600 bpi magnetic tape, RX01, TU58 DECtape II cartridge.

EDE facilitates the sharing of documents between VAX/VMS and Wang OIS systems. EDE enables users to convert Wang documents that have been transmitted to VAX/VMS in DECdx/VMS format and vice versa. Once converted, the document can be used on the receiving system.

The textual content and format of documents are preserved during conversion. However, since the capabilities of the word processing systems are not identical and since some control information is not transmitted, some attributes and functions are not converted.

During installation, the customer may install EDE as an integral component of the ALL-IN-1 Office Menu or as a VAX/VMS product that can be invoked using DCL.

Price: $3500

INDENT, Version 1.3

SPD Number: 12.33
Operating System: RSTS
Keywords: Compilers
Database management
Information management
Forms management

Distribution media: 9-track 800/1600 bpi magnetic tape, RK05, RK06, RK07, RL01, RL02.

This data entry and forms management product for commercial applications programs written in DIBOL, COBOL, or BASIC-PLUS-2, runs under the RSTS/E operating system. INDENT supports DIGITAL's VT52 and VT100 terminals and uses the following VT100 features: reverse video, bold, underline, blink, 132-column lines, scroll, split screen, reverse screen, and the line-drawing character set.

INDENT is designed to make optimum use of system resources. Application programs communicate with executing forms tasks through the RSTS/E message SEND/RECEIVE directives. Forms are controlled using standard subroutine calls that support both single and multiterminal applications. INDENT supports both synchronous and asyn-

chronous commands. The asynchronous commands enable host programs to continue executing application code subsequent to executing an INDENT command.

The user-oriented INDENT form definition language is easy to learn. Form definitions support COBOL data types, including leading-separate-sign, overpunch, and packed-decimal, as well as alphabetic, alphanumeric, and numeric data types for DIBOL, BASIC-PLUS-2, and COBOL.

The extensive forms attribute set includes SKIP, PROTECT, BOX, HALT, CUE, DUPLICATE, REQUIRED, SCROLL, PAINT, INITIAL, PICTURE, DATE, TIME, ERASE, and REVERSE. Form definitions can include table-lookup and range-checking attributes, including LOOKUP, SUBSTITUTE, LOWER, and UPPER.

Price: $1200

INDENT, Version 2.1

SPD Number: 26.46
Operating System: MicroVMS, VMS
Keywords: Data entry
Forms management

Distribution media: RX01, TU58 DECtape II cartridge.

This data entry and forms management product is for commercial application programs written in languages that run under the VAX/VMS operating system and that allow subroutine calls through the VAX-11 Procedure Calling Standard. VAX INDENT provides support for VT100- and VT200-series terminals and uses reverse video, bold, underline, blink, 132-column lines, scroll, reverse screen, and the "Special Graphics" character set.

VAX INDENT application programs communicate with executing forms images through the VAX mailbox facility. Forms are controlled by means of standard subroutine calls that support both single and multiterminal applications.

VAX INDENT supports both synchronous and asynchronous commands. The asynchronous commands enable host programs to continue executing application code after executing but before completing a VAX INDENT command.

VAX INDENT form definitions are created by using a text editor. The resulting source code is then compiled by using the VAX INDENT compiler, which creates an executable image, in VAX native mode. A VAX native-mode forms driver is linked to the host application program

by the standard VAX linker. The form task image is executed by the application program and the VAX INDENT run-time system. Application programs that use VAX INDENT run in VAX native mode.

VAX INDENT is functionally compatible with RSTS/E INDENT except for minor operating system-imposed differences.

Price: Available upon request

Interleaf Workstation Publishing Software™

SPD Number: A9.92
Operating System: MicroVMS
Keywords: Text processing
Graphics
Integrated text and graphics

Interleaf is a composite document editor for producing typeset-quality copy. Text, graphics, charts, and illustrations can be prepared at a single terminal.

Features include:

- WYSIWYG (What You See Is What You Get) interactive editor.
- Over 40 specialized data-driven business chart styles to choose from including bar charts, pie charts, line charts, exploded pie charts, surface and scatter charts.
- Pop-up menus allow simultaneous document and menu viewing. This facilitates integration of text, graphics and charts. Mouse is used for pointing to and selecting documents. Mouse-menu sequences are supplemented by keyboard function keys.
- Three type styles, Greek and math symbols, bold, and italic.
- Text editing and formatting features include: automatic headers, footers, and pagination; page numbering; justification; changing font type and size; copy, move, insert, and delete text; search and replace operations; forward, reverse, and horizontal scrolling.
- The Graphics Editor enables the user to create lines, boxes, and circles/ellipses. Graphic objects can be grouped and ungrouped.

Trademark: Interleaf Workstation Publishing Software is a trademark of Interleaf, Inc.

Price: $3,000

LN01 Font Utility

SPD Number: 26.35
Operating System: VMS
Keywords: Device drivers/handlers
Printing
Text management

Distribution media: TU58 DECtape II cartridge, 9-track 1600 bpi magnetic tape, RX01.

This utility program helps in the management, development, and use of fonts for the LN01 laser printer. The program provides a mechanism for creating and editing LN01 fonts, combining text with LN01 fonts, obtaining information about an LN01 font, and obtaining sample output.

Price: Available upon request

Micro/RSX DECtype, Version 3.0

SPD Number: 18.14
Operating System: Micro/RSX
Keywords: Printing
Word processing

Distribution medium: RX50.

Micro/RSX DECtype is a DECmate-style word processor providing many of the features of the DECmate and WPS-8. Experienced WPS or DECmate users can begin using Micro/RSX DECtype immediately. Micro/RSX DECtype supports the WPS keyboard so that Micro/RSX DECtype users can execute most of the editing functions. Micro/RSX DECtype documentation is organized and formatted to resemble WPS documentation.

Micro/RSX DECtype permits concurrent word and data processing in a multiuser environment, which extends a data processing system with word processing capabilities. The Micro/RSX DECtype editor creates and maintains documents stored on the full range of disk devices supported by Micro/RSX/VMS. Storage available for documents will vary, depending on other data-storage requirements on the same disk medium.

Price: $595

MS Word™ – Microsoft® Applications for the VAXmate

SPD Number: X0.34
Operating System: MS™-DOS V3.10
Keywords: Word processing
VAXmate

MS Word is Microsoft's most powerful word processor. It is a widely-used PC word processor providing support for a wide variety of printers, from dot matrix and daisy wheel to laser. Character attributes such as bolding, italics, underline, and sub/superscripts are displayed in a "what you see is what you get" format.

Advanced editing features include multiple windows (displaying more than one file on the screen at a time), file merge, newspaper-style columns, headers and footers, 80,000-word spell checker, hyphenation, a glossary of commonly used phrases, and predefined "style" sheets to speed setup of commonly used document formats.

Trademark: Microsoft is a registered trademark of Microsoft Corporation.

MS and MS Word are trademarks of Microsoft Corporation.

Price: $450

PROSE-PLUS, Version 1.0, CT Word Processing Editor

SPD Number: 40.13
Operating System: P/OS
Keywords: Graphics
Integrated text and graphics
Menus
Printing
Text management
Word processing
Personal computing

PROSE-PLUS is a compound document software application for the Professional 300 series. The product allows the user to merge both text and graphics into a single document.

PROSE-PLUS supports immediate display of the effects of all text editing functions such as bold, underline, and right-margin justification, as well as the ability to display the combined text and graphics document prior to printing. In picture mode, the user can create drawings. The graphics editor supports four basic object types (lines, circles/arcs, rectangles, and text). In addition, GIDIS format graphic files created in other applications can be inserted.

PROSE-PLUS features an interactive spelling checker with a base dictionary of over 60,000 words along with a user dictionary for proper names and acronyms.

Price: $295

RSX-11M-PLUS DECtype, Version 3.0

SPD Number: 14.82
Operating System: RSX
Keywords: Printing
Word processing

Distribution media: 9-track 800/1600 bpi magnetic tape, RK07, RL02.

This DECmate-style word processor provides many of the features of the DECmate and WPS-8. Experienced WPS or DECmate users can begin using RSX-11M-PLUS DECtype immediately. RSX-11M-PLUS DECtype supports the WPS keyboard so that RSX-11M-PLUS DECtype users can execute most of the editing functions. RSX-11M-PLUS DECtype documentation is organized and formatted to resemble WPS documentation.

RSX-11M-PLUS DECtype permits concurrent word and data processing in a multiuser environment, which extends a data processing system with word processing capabilities. The RSX-11M-PLUS DECtype editor creates and maintains documents stored on the full range of disk devices supported by RSX-11M-PLUS/VMS. Storage available for documents will vary, depending on other data-storage requirements on the same disk medium.

Refer to SPD 14.82.00 when requesting further information on this product from your local DIGITAL sales office.

Price: $900

Select™

SPD Number: A0.99
Operating System: CP/M®, MS™-DOS
Keywords: Personal computing
Editing
Spelling checker
List processing
Text processing
Word processing

Select is a word processing software package running on the Rainbow personal computer that helps both the secretary and the professional to produce reports, memos, lists, schedules and other material. The

software is menu-driven throughout and contains a computer-assisted teaching system integrated with the software. This teaching facility is complemented by an extensive HELP facility that can be invoked at any time during the use of Select. Most operations can be accomplished by the user without reference to the manuals.

Select is a CP/M-86/80 and MS-DOS applications program that makes use of the file name and directory services of the operating systems. The user should have some familiarity with the basic operations of these operating systems.

Select includes spelling verification and form letter generation facilities. Select form letter facilities can be used with LIST MANAGER™ list processor to produce form letters from lists contained in a LIST MANAGER data file. Select can be used for document or program creation and can edit RAINBOW ASCII-formatted files created by other software.

Features:

- Edits letters, documents and source programs up to the maximum file size space on the disk (typically 200 pages)
- Edits ASCII files generated by MULTIPLAN-86™ software
- Allows the creation of form letters to be merged with lists from LIST MANAGER
- Performs on-screen formatting and justification of text and automatic pagination
- Formats pages, including the use of variable top, bottom, left, and right margins

Price: $395

VAX Rainbow Office Workstation, Version 1.0

SPD Number: 26.77
Operating System: VMS
Keywords: Communications
Electronic mail
File maintenance
Office systems
Workstations

The VAX Rainbow Office Workstation is the VAX/VMS host software running under MS™-DOS Rainbow Office Workstation. The VAX Rainbow Office Workstation provides the following features to Rainbow Office Workstation users:

- Electronic mail interface - Receives outgoing mail from the Rainbow Office Workstation and dispatches it to all addressees. Incoming messages are collected and transmitted to the Rainbow Office Workstation.
- Undeliverable message notification - If an outgoing message proves to be undeliverable, the VAX Rainbow Office Workstation automatically sends a message notifying the Rainbow Office Workstation user.
- Host mail file housekeeping - The VAX Rainbow Office Workstation keeps backup copies of all mail messages read by the Rainbow Office Workstation software. These messages accumulate in a special Rainbow Office Workstation RBCREAD file not in the mail systems primary READ file.
- Supports all major VAX mail systems - The VAX Rainbow Office Workstation includes interfaces to the VAX/VMS Mail Utility, DECmail, and the ALL-IN-1 customizable electronic mail application.

DATATRIEVE Interface allows the Rainbow Office Workstation user to extract data from VAX DATATRIEVE and automatically transmit it to the Rainbow in a form readable by Rainbow applications (Lotus 1-2-3™, Symphony™, MULTIPLAN™, or Graphwriter®). The extracted data may be written in a DIF™, SYLK, or ASCII text format.

The VAX DATATRIEVE Interface takes the form of extensions to the standard VAX DATATRIEVE command set. All standard VAX DATATRIEVE functions (with the exception of VIEW) are passed through the interface and processed by VAX DATATRIEVE in the usual fashion.

Graphwriter is a registered trademark of Graphic Communications, Inc.

DIF is a trademark of Software Arts, Inc.

Price: $2,500

WPS-PLUS/ALL-IN-1

SPD Number: 26.48
Operating System: MicroVMS, VMS
Keywords: ALL-IN-1
List processing
Editing
Printing
Electronic mail
Office systems
Word processing

Distribution media: 9-track 1600 bpi magnetic tape, RA60, RK07, RL02.

This document-processing software system provides Gold Key-style word processing for ALL-IN-1 Version 2.0 users. Users can create, edit, and print documents; produce form letters and maintain mailing lists; file and retrieve documents by document name, number, or keyword; and include data from a VMS application in a document. Users can convert a WPS-PLUS document to a VMS file and send electronic mail to ALL-IN-1 or VAX/VMS users. Technical characters, scientific equations, diagrams, matrixes, and VT100 character set equations can be included in a document.

Price: $4000

WPS-PLUS/PC, Version 1.0

SPD Number: 30.75
Operating System: VMS
Keywords: Editing
List processing
WPS for the IBM® PC
Word processing

WPS-PLUS/PC is a document-processing software system that provides Gold key-style word processing for users of IBM® PCs and IBM PC/XTs running IBM's PC-DOS Version 2.10, 3.0, or 3.10.

WPS-PLUS/PC allows PC-DOS users to:

- Create, edit, and print documents
- Produce form letters and maintain mailing lists

- Retrieve documents by document name, number, or keyword
- Convert a WPS-PLUS document to and from a DX file format and ASCII file format
- Communicate through user-developed scripts
- Create and modify printer attribute and character print tables
- Transfer documents with DIGITAL hosts running WPS-PLUS/VMS or WPS-PLUS/ALL-IN-1
- Include technical characters and scientific equations in a document
- Run WPS-PLUS/VMS on the VAX in VT100 emulation mode which also supports the DIGITAL multinational and technical character sets
- Include diagrams, matrixes and VT100 character set equations, and composite and multinational characters in a document.

NOTE

The IBM PC standard video character set does not fully support DIGITAL standard multinational and technical character sets. The output document created in WPS-PLUS/PC will fully support these character sets. When printed on the LA210 or transferred to the VAX, the correct DIGITAL character sets will be displayed.

Trademark: IBM is a registered trademark of International Business Machines Corporation.

Price: $595

WPS-PLUS/POS, Version 1.0

SPD Number: 40.30
Operating System: P/OS
Keywords: Editing
List processing
Word processing
Personal computing

WPS-PLUS/POS is a document processing software system that provides Gold key word processing. WPS-PLUS/POS is designed to run on any Professional 350 or 380 series system configured with the P/OS hard disk operating system.

WPS-PLUS features menu-driven document processing, including word and list processing with math and sort capabilities. WPS-PLUS editing permits the user to input text and correct text without retyping. List processing allows production of many identical or nearly identical docu-

ments, including reports, customized letters, and mailing lists. Math and sort utilities permit the user to manipulate data within the list processing documents.

WPS-PLUS/POS allows users to create, edit, and print documents; produce form letters and maintain mailing lists; file and retrieve documents by folder, title, or number; include data from a Professional application in a document; and convert a WPS-PLUS document to and from a P/OS file format, DX file format, and ASCII file format.

Price: $695

WPS-PLUS/Rainbow, Version 1.0

SPD Number: 50.11
Operating System: MS™-DOS
Keywords: Personal computing
Communications
List processing
Matrices
Office systems
Technical character support
Word processing

WPS-PLUS/Rainbow is a document processing software system that provides Gold key-style word processing for users of MS™-DOS, Version 2.11-1. It allows MS-DOS users to:

- Create, edit, and print documents
- Produce form letters and maintain mailing lists
- File and retrieve documents by document name, number, or keyword
- Include data from a Rainbow application in a document
- Convert a WPS-PLUS document to a MS-DOS file
- Convert a WPS-PLUS document to a DECmate/WPS document
- Use computer-based instruction to learn basic WPS-PLUS functions
- Include diagrams, matrixes and VT100 character set equations as well as composite and multinational characters in a document.
- Automate communications through user-developed scripts

Trademark: MS is a trademark of Microsoft Corporation.

Price: Available upon request

Utilities

Diagnostic Program Macros Library

SPD Number: 26.25
Operating System: VMS
Keywords: Diagnostics

Distribution media: RX01, TU58 DECtape II cartridge.

This set of macros establishes the interface between a diagnostic program and the VAX diagnostic supervisor. The VAX Diagnostic Program Macros Library is provided in two versions: MACRO-32 and BLISS-32.

Diagnostic program macros are organized into five categories by function and method of implementation:

- Utility macros control program format through assembly and linker directives. Program control utility macros enable the diagnostic program to test specific run-time conditions and to alter program flow.
- Symbol definition macros assist the programmer by defining the global symbols required by many programs.
- Supervisor service macros include supervisor service routines that perform specific functions but do not modify program flow. Most supervisor routines return status codes and return control to the location following the instruction that called the supervisor routine.
- VAX/VMS (Virtual Memory System) service macros, a subset of VAX/VMS service macros, are available to level 2R diagnostic programs. (A few are available to level 3 diagnostic programs.) The service macros return status codes and return control to the location following the instruction that called the VAX/VMS service.
- RMS (Record Management System) service macros, a subset of which is available to all diagnostic programs.

Price: Available upon request

Encryption

SPD Number: 26.74
Operating System: VMS
Keywords: Data conversion
Security

Distribution media: 9-track 1600 bpi magnetic tape, RX01, TU58 DECtape II cartridge.

This layered product encrypts user data and files, preventing anyone not knowing the encryption key from decrypting the data or making any use of the data values. This product contains a software implementation of the U.S. National Bureau of Standards Data Encryption Standard (DES). The DES encryption algorithm, when implemented in hardware, is the U.S. Government standard for the encryption of data in all but certain national security applications.

This product enables customers wishing to provide a measure of protection and privacy to data stored on their systems with the utilities to do so. Customers requiring enhanced system security are encouraged to develop a complete security plan and to incorporate data encryption as one element of that plan.

Price: $2000

Micro/RSX SORT/MERGE, Version 3.0

SPD Number: 18.13
Operating System: Micro/RSX
Keywords: Development tools
Utilities

Distribution medium: RX50.

This utility for the Micro/RSX operating system can accept up to 10 RMS-11 formatted files and produce one reordered RMS-11 formatted file. Records may be sequenced in ascending or descending order by as many as 16 key fields with a maximum total key size of 512 bytes. Commands to Micro/RSX SORT/MERGE may be issued interactively, through the standard command-line interface or through the specification file created by the user.

Micro/RSX SORT/MERGE includes a package of callable subroutines that allow many other Micro/RSX languages to execute a sort or a merge. This callable package also allows the user to specify several user-written routines - for example, an equal-key callback, a user-defined key comparison algorithm, a user-defined warning routine, and a user-defined input routine for the merge record interface - that will be used instead of the predefined Micro/RSX SORT/MERGE routines.

Price: Available upon request

PRODUCER Interpreter

SPD Number: 26.53
Operating System: MicroVMS, VMS
Keywords: Graphics
Interpreters

Distribution media: 9-track 1600 bpi magnetic tape, RX01, RX50, TU58 DECtape II cartridge.

The VAX PRODUCER Interpreter reads and processes files produced by the VAX PRODUCER Development System. Two types of files are supported: display libraries, which are created by the VAX DRAW graphics editor and hold the visual information, and interpreter files, which are created by using the VAX DESIGN Preprocessor and Linker

and contain the branching, response, and judging information. VAX DESIGN, the VAX PRODUCER language used to create highly interactive and graphically oriented programs, may be used in such applications as computer-based instruction (CBI), point of purchase, or information retrieval.

The VAX PRODUCER Interpreter can also call other programs on the VAX/VMS or MicroVMS system as directed by commands in the interpreted files.

Price: $100 - $150

Professional Installation and Maintenance, Version 3.0

SPD Number: 40.48
Operating System: P/OS
Keywords: Personal computing
Installation
Maintenance

Professional Installation and Maintenance is a set of diskettes for the Professional 300 series personal computers which provide an additional level of testing above the self-test.

The maintenance application is a two-diskette application that runs from a provided floppy diskette. In configurations where a Professional without a diskette drive is used, the maintenance application can be run from the host Professional. The programs available are system unit test, keyboard key test, printer test, configuration display, bar patterns, update maintenance services, big disk block check, and minidisk block check.

Price: $495

Professional Real-Time Interface Library

SPD Number: 30.37
Operating System: RSX, VMS
Keywords: Device drivers/handlers
Programming tools
Utilities

Distribution media: PDP: 9-track 1600 bpi magnetic tape, RL02. VAX: RX01, TU58 DECtape II cartridge.

This library provides subroutines to control real-time data transfers to and from external devices using the PC3xx-AA Real-Time Interface and the ADMPC-xx Analog Data Module (ADM) options for PC300-series personal computers. The library includes routines for serial asynchronous I/O, IEEE-488 operation, parallel digital I/O on either the RTI's

24-line parallel port or the ADM's 8-bit input/8-bit output ports, analog inputs to memory and to disk, and utility operation, including unit conversions and bit checking, setting, and clearing.

Professional Real-Time Interface Library supports hardware initialization, establishment of handshaking or flow control parameters, and data transfers to, from, or between devices interfaced to the PC3xx-AA and/or ADMPC-xx.

I/O operations can be performed synchronously or asynchronously with the calling tasks. Calls can be made concurrently from multiple tasks. The user can also create a shared resident library of subroutines callable from Professional Tool Kit BASIC-PLUS-2, Professional Tool Kit FORTRAN-77, and Profession Host Tool Kit Pascal. After development using the Professional Host Tool Kit, the programmer can run the applications on an appropriately configured PC300 target system.

Price: $300

PRO/IVIS Loadable Driver and Subroutine Library

SPD Number: 40.38
Operating System: P/OS
Keywords: Development tools
Drivers
Programming tools
Personal computing

IVIS software consists of a PRO 350 loadable device driver, a subroutine library for PRO/Tool Kit Languages, the maintenance services module that supports IVIS and its videodisc player, and an installation verification program. These pieces of software are shipped with the IVIS hardware (PC3VS-A).

The PRO/IVIS loadable driver is a PRO 350 application program that, when installed, links itself into P/OS and acts as a standard device driver. Programs use the driver to make requests of the IVIS hardware (PC3VS-A) and issue control sequences via the IVIS interface to the supported videodisc player by using the regular QIO directives mechanism.

The PRO/IVIS subroutine library is a P/OS clustered library that interfaces to the IVIS device driver for Tool Kit languages that may not issue device driver requests directly. It functions the same as the driver except that when the library initialize routine is called, the device driver is loaded into memory and started. This alleviates any need to request the driver by the main program.

Price: $4,575

PRO/VENIX™ Software Development Kit, Version 2.0

SPD Number: 40.57
Operating System: RT-11
Keywords: Application development
Programming tools

The PRO/VENIX Software Development Kit provides language compilers, programming tools, and libraries for software development with PRO/VENIX Base System Kit. Each kit is loaded with shell script that directs the user through the installation process.

Language compilers in this kit include FORTRAN-77, Pascal Compiler/Interpreter, and C Compiler.

Programming tools included are the standard UNIX™ utilities that enable developers to modularize, debug, optimize, and make use of system facilities in their program development.

Trademark: VENIX is a trademark of VenturCom, Inc.

UNIX is a trademark of AT&T Bell Laboratories

DIGITAL distributes this software product under license from VenturCom, Inc. and the American Telephone and Telegraph Company.

Price: $595

RTEM-11 (RT-11 Emulator for RT-11, Version 5.1)

SPD Number: 30.21
Operating System: RSX, RT-11, VMS
Keywords: Assemblers
Compilers
Debugging
Programming tools

Memory required: 32 Kwords minimum. Distribution media: PDP: 9-track 800/1600 bpi magnetic tape, RK07, RL02. VAX: RX01, TU58 DECtape II cartridge.

RTEM-11 provides the RT-11 program development environment on RSX-11M, RSX-11M-PLUS, and VAX/VMS. RTEM-11 runs in compatibility mode on VAX/VMS systems and allows several users to develop RT-11 applications concurrently on a host system. The number of users depends on CPU power and system activity. Application programs can be created, edited, assembled, and linked on RTEM-11 and then executed on RT-11.

Price: Available upon request

SIDEWAYS™

SPD Number: A2.80
Operating System: CP/M®-86/80, MS™-DOS
Keywords: Personal computing
Charts
Columns
Horizontal
Printing

SIDEWAYS is a printing utility which rotates an ASCII file by 90 degrees as it prints. SIDEWAYS offers the user a choice of type sizes, control over margins, character spacing, line spacing and a double strike feature for added printing density.

SIDEWAYS offers a feature called Glue Lines enabling the spreadsheet to be printed as a continuous document without breaks, even if segmented by the program.

Trademark: SIDEWAYS is a trademark of Funk Software, Inc.

MS is a trademark of Microsoft Corporation.

CP/M is a registered trademark of Digital Research, Inc.

Price: $90

SORT/MERGE, Version 3.0

SPD Number: 12.07
Operating System: RSX
Keywords: Database management
Text management

Distribution media: 9-track 800/1600 bpi magnetic tape, RK06, RK07, RL01, RL02.

This utility (formerly SORT-11) for the RSX-11M and the RSX-11M-PLUS operating systems can accept as input up to 10 RMS-11 formatted files and will produce as output one reordered RMS-11 formatted file. Records may be sequenced in ascending or descending order by as many as 16 key fields, with a maximum total key size of 512 bytes.

SORT/MERGE features fixed-length, variable-length, variable-with-fixed-control (VFC), and RMS stream-record formats. The types of file organizations are sequential, relative, and indexed. (If more than one input file is used, each file may have a different organization and record format.) The sorting processes are record sort, tag sort, index sort, and address routing sort.

Commands to PDP-11 SORT/MERGE may be issued interactively, by means of the standard command line interface, or through the specification file created by the user. PDP-11 SORT/MERGE routines are used directly by COBOL-81 through the COBOL SORT and MERGE statements.

PDP-11 SORT/MERGE includes a package of callable subroutines, which allow many other PDP-11 languages to execute a sort or a merge. Those subroutines accept for input either records one at a time from the host program or file specifications. The output may be either records one at a time or a complete file, regardless of the input mode.

Price: Available upon request

SPD – Model Number Chart

The SPD - Model Number Chart provides the following information:

- SPD - The unique product number associated with each product.
- Product Name - The software title.
- Model Number (must be referenced when ordering all software products) - The format of the model number is Q*XXX-YY, where:

  Q = All software model numbers starting with Q.
  * = An alphanumeric character representing the hardware system. This character can be any of the following:

C = VAX 11/730	K = VAX 8600/8650	4 = VAX Station II
D = VAX 11/750	M = VAX 8800	5 = VAX 8200
E = VAX 11/780	N = MicroVAX	7 = VAX 8300
J = PDP-11	2 = VAX 8550/8700	9 = VAX 5300

  Y = The type of license. There are two categories of licenses, Paid-Up and Periodic Payment. A Paid-Up License is the initial purchase of a software license, and has two types:

  - Single License (UZ, DZ, A3, C3) - A standalone system or the first installation of the software product within a single VAX cluster system.
  - Cluster License (QZ) - For additional CPUs.

  A Periodic Payment License allows monthly payments of the software license (see page viii for more information). The two types are:

  - Initial License (1P), Single License (JP) - A standalone system or the first installation of the software product within a single VAX cluster system.
  - Cluster License (JZ) - For additional CPUs.

SPD – Model Number Chart

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
A0.50	poly-XFR Communications					
	RSX	QA139-CD				
	RT-11	QA140-CD				
	RSTS	QA141-CD				
	MicroVAX RX50	QA142-C3				
	MicroVAX TU58	QA142-C5				
	VMS	QA142-CM				
A0.72	LOGO	QA179-C3				
A0.94	MULTIPLAN					
	DECmate					
	MS-DOS	QA064-C3				
	CP/M	QAAB5-C3				
	Rainbow					
	MS-DOS	QA063-C3				
	CP/M	QA588-C3				
A0.95	MBASIC-86 for the Rainbow	QA066-C3				
A0.98	MBASIC for DECmate II	QA067-C3				
A0.99	SELECT	QA061-C3				
A1.10	MWC-86 C Compiler	QA068-C3				
A1.15	Daisy-Aids	QA229-C3				

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
A1.76	Multi Journal Accounting Payroll and Personnel					
	MS-DOS	QA395-C3				
	CCPM	QAX06-C3				
	P/OS	QA386-C3				
	CPM	QA400-C3				
A1.77	Multi Journal Accounting Accounts/Receivable					
	MS-DOS	QA396-C3				
	CCPM	QAX04-C3				
	P/OS	QA386-C3				
	CPM	QA401-C3				
A1.78	Multi Journal Accounting Accounts/Payable					
	MS DOS	QA397-C3				
	CCPM	QAX03-C3				
	P/OS	QA387-C3				
	CPM	QA402-C3				
A2.22	RM/COBOL	QA465-C3				
A2.44	Lotus 1-2-3	QA528-C3				
A2.80	SIDEWAYS					
	DECmate	QA663-C3				
	Rainbow	QA590-C3				

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
A2.82	ATHENA/graph	QA550-C3				
A2.98	PFS:FILE	QA575-C3				
A3.00	PFS:REPORT	QA577-C3				
A3.06	LN01 Soft Font Library	Q*600-UZ	Q*600-QZ	Q*600-1P	Q*600-JP	Q*600-JZ
A3.23	poly-COM					
	DECmate	QAAD3-C3				
	Rainbow	QA193-C3				
A3.29	dBASE II					
	MS-DOS	QA713-C3				
	CP/M	QA281-C3				
A3.30	DESIGN GRAPHIX/Executive	QA684-C3				
A3.32	PLOTLN	QA778-CM				
A3.45	DESQ	QA691-C3				
A3.55	FORTRAN-77/RT-11	QA609-DZ				
A3.56	Rainbow ReGIS	QA743-C3				
A3.97	MS-BASIC Interpreter	QA856-C3				
A3.98	MS-BASIC Compiler	QA857-C3				
A4.03	Multi Journal Accounting General Ledger					
	MS-DOS	QA394-C3				
	CCPM	QAX01-C3				
	P/OS	QA384-C3				
	CP/M	QA399-C3				

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
A4.04	MS-PASCAL Compiler	QA867-C3				
A4.18	Multi Journal Accounting Order Entry/Inventory					
	MS-DOS	QA398-C3				
	CCPM	QAX05-C3				
	P/OS	QA388-C3				
	CP/M	QA403-C3				
A4.20	MS-FORTRAN Compiler	QAA14-C3				
A4.45	Symphony	QAA69-C3				
A4.48	Horizon Spreadsheet	QA864-C3				
A4.52	CLIN-TEAMS/REMOTE VMS 16MT	QAA88-CM				
	PRO	QAA90-C3				
A4.56	DR Logo	QAAC8-C3				
A4.62	dBASE III, MS-DOS	QAA70-C3				
A4.79	Phoenix-Pro	QAAC2-C3				
A9.92	Interleaf Workstation Publishing Software	QAAJ5-C3				
D0.04	20/20					
	Rainbow	QAX62-C3				
	Professional	QAAA0-C3				
	MicroVAX-11, RX50	QAX82-C3				
	MicroVAX-II, TK50	QAX82-C5				
	VAX 725/730	QAX61-CM				

SPD	Product Name	Paid-Up Licenses Single	Paid-Up Licenses Cluster	Periodic Payment Licenses Initial	Periodic Payment Licenses Single	Periodic Payment Licenses Cluster
	VAX 750	QAX63-CM	QAX71-CM			
	VAX 780/785	QAX64-CM	QAX72-CM			
	VAX 8200	QAXD1-CM	QAXD4-CM			
	VAX 8300	QAXD2-CM	QAXD5-CM			
	VAX 8500	QAXD8-CM	QAXD7-CM			
	VAX 8600/8650	QAX65-CM	QAX73-CM			
	VAX 880	QAXD3-CM	QAXD6-CM			
D8.57	Phoenix-PMS Project Management System Planning and Evaluation					
	VAX 730	QAAU1-CM				
	VAX 750	QAAU2-CM				
	VAX 780	QAAU3-CM				
	VAX 785	QAAU4-CM				
	VAX 8600	QAAU5-CM				
D8.92	Phoenix-PMS Project Management System Financial Analysis					
	MicroVAX RX50	QAAK1-C3				
	MicroVAX TK50	QAAK1-C5				
	VAX 730	QAAU6-CM				
	VAX 750	QAAU7-CM				
	VAX 780	QAAU8-CM				

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
	VAX 785	QAAG9-CM				
	VAX 8600	QAAU9-CM				
S0.14	SPM-11M-PLUS	QSP15-DZ				
S0.16	SPM	Q*850-UZ	Q*850-QZ	Q*850-1P	Q*850-JP	Q*850-JZ
S0.38	FORTRAN-77 DEBUG/RSX, RSTS/E	QJ440-UZ				
X0.01	INTERLISP for VAX Computers VMS	QAX28-DZ				
	UNIX	QAX26-DZ				
X0.02	SuperCalc3	QAX22-C3				
X0.03	Golden Common LISP	QAX39-C3				
X0.05	Overhead Express	QAX20-C3				
X0.06	GraFIX Partner	QAX38-C3				
X0.07	Graphwriter	QAX07-C3				
X0.08	AutoCAD-ADE	QAXX4-C3				
X0.09	Quintus Prolog VMS	QAX92-CM	QAX92-QZ			
	UNIX	QAX26-DZ				
	MicroVMS	QAXA2-DZ				
X0.16	RS/1 PRO	QA497-C3				
	VAX 750	QA041-CM				
	VAX 780/782	QA169-CM	QEZ90-QZ			
	VAX 785	QA210-CM	QEZA5-QZ			
	VAX 8600	QAAR8-CM	QKZ90-QZ			
X0.17	KSH Accounts Receivable VMS	QAX41-CM				
	MicroVMS	QAX40-CM				

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
X0.18	KSH Accounts Payable VMS	QAX44-CM				
	MicroVMS	QAX43-CM				
X0.19	KSH Gen Ledger and Finan Rpt VMS	QAX50-CM				
	MicroVMS	QAX49-CM				
X0.20	KSH Time Recording, Costing, Billing					
	VMS	QAX53-CM				
	MicroVMS	QAX52-CM				
X0.21	KSH MicroVAX Distribution System					
	VMS	QAXDD-CM				
	MicroVMS	QAXDB-CM				
X0.22	KSH Ord Entry, Inv, Sales Analysis					
	VMS	QAX47-CM				
	MicroVMS	QAX46-CM				
X0.23	S.1 VMS	QAXAJ-UZ				
	ULTRIX	QAXAT-UZ				
X0.24	INTELLECT	Q*Z68-DZ	Q*Z68-QZ			
X0.27	Spatial/II	Q*Z52-UZ	Q*Z52-QZ	Q*Z52-1P	Q*Z52-JP	Q*Z52-JZ
X0.28	Linkware MS DOS	QAXB7-C3				
	CP/M	QAXB8-C3				
	PC DOS	QAXB9-C3				
	VAX 730	QAXB5-CM				
	VAX 750, 780, 785	QAXB4-CM				
	VAX 8600	QAXB3-CM				

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
X0.32	VAXmate Operating Environment	Q*A93-CI				
X0.33	MS Project	Q6X04-CI				
X0.34	MS Word	Q6X01-CI				
X0.35	MULTIPLAN	Q6X03-CI				
X0.36	MS Chart	Q6X01-CI				
X0.37	MS FORTRAN Compiler	Q6X06-CI				
X0.38	MS Pascal Compiler	Q6X07-CI				
X0.39	MS C Compiler	Q6X06-CI				
X0.40	MS COBOL Compiler	Q6X09-CI				
X0.41	MS Macro Assembler	Q6X10-CI				
X0.42	MS Flight Simulator	Q6X11-CI				
X0.43	PACS PLUS/EZLOG Cluster Option	Q*Z17				
06.11	COS-310 2780/3780 RDCP	QF312-YY				
07.21	DECmail/MS-10	Q*215-DZ				
07.22	BLISS-36 Implementation Language	Q*115-DZ				
08.57	KL10 Microcode Product	QH850-YM				
09.21	RSX-11S	QJ642-UZ				
09.27	DECserver 100	Q*925-UZ				
10.01	RSX-11 2780/3780 Emulator	Q*D82-UZ				
10.06	RSX DLX-11	QJ689-UZ				
10.07	MIOS-11/RSX Driver					
10.11	COMM IOP-DZ	QJ733-DZ				
10.12	COMM IOP-DUP	QJ734-DZ				

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
10.16	RT-11 2780/3780 Protocol Emulator	QJD59-DZ				
10.42	RSX-11 PSI/M	QJD91-UZ				
10.43	RSX-11 PSI/M PLUS	QJD92-UZ				
10.48	RSX-11M/M-PLUS RJE/HASP	Q*S63-YM				
10.49	RSTS/E High-Performance 2780/3780 Emulator	Q*D06-DZ				
10.50	RSTS/E 2780	Q*D10-DZ				
10.51	RSX-11M/IAS RJE/HASP	QJS60-DZ				
10.61	CTS-300 RDCP (2780/3780)	Q*D04-DZ				
10.66	DECnet-11M-PLUS	QR581-UZ				
10.71	DECnet-IAS	QR682-DZ				
10.72	DECnet-RT	QJ687-DZ				
10.73	DECnet/E	QP692-DZ				
10.74	DECnet-11S	QJ762-DZ				
10.75	DECnet-11M	QJ764-DZ				
10.77	MUX200/RSX-IAS Multiterminal Emulator	QJ070-CT				
10.79	UN1004/RSX	Q*170-UZ				
10.88	RSX-11/3271 Protocol Emulator	Q*D84-UZ				
10.90	IAS/2780 Protocol Emulator	QRD03-DZ				
10.95	DX/RSTS	Q*703-DZ				
10.96	DX/11M	Q*704-DZ				
12.01	RT-11	QJ013-UZ				

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
12.05	BASIC-PLUS/RT-11	QJ913-UZ				
12.07	SORT/MERGE	Q*602-UZ				
12.09	CTS-300	Q*354-UZ				
12.10	FORTRAN IV/RT-11	QB813-UZ				
12.14	Instrument Bus Subroutines	Q*015-DZ				
12.17	MRRT-11	QJ018-DZ				
12.18	DSM-11	Q*821-UZ				
12.21	PROM/RT-11	Q*V11-CB				
12.22	FMS-11/RT-11	QJ713-DZ				
12.27	FMS-11/RSX	Q*715-UZ				
12.32	FMS-11/IAS	Q*712-DZ				
12.33	INDENT	Q*530-UZ				
12.40	COBOL	Q*013-UZ				
12.41	FORTRAN IV/RSTS/E	Q*435-UZ				
12.42	PLXY-11/RT	Q*S91-XM				
12.48	DATATRIEVE-11	Q*301-UZ				
12.49	KMC11 Tools	Q*633-YY				
12.55	QUILL	Q*A09-DZ				
12.58	MACDBG-RT	QJ039-UZ				
12.60	MENU-11/RSTS	Q*690-UZ				
12.61	MACSYS-RT	QJ061-IX				
12.64	RT-11 MDE/T-11	QJA61-DZ				

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
12.65	IEX-RT-Handler	Q*S36-XY				
12.66	DBMS-11	Q*516-DZ				
12.68	IEX-RSX-Driver	Q*451-UZ				
12.69	DATATRIEVE-11/IAS	QP302-DZ				
12.70	KXT11-CA Peripheral Processor Tool Kit/RT-11	Q*V51-UZ				
12.71	CTS-300 DECtype	Q*039-UZ				
12.72	DRX11-C/RSX Driver					
12.77	RSX-11 TSU05 Device Driver					
12.79	FORTRAN-77 DEBUG/RSTS/E					
13.01	RSTS/E	Q*692-UZ				
13.01	RSTS/E	Q*438-EM				
13.05	DMS-500	Q*430-UZ				
13.11	ADE/RSTS: Information Management for Office Professionals	Q*530-UZ				
13.16	COBOL-81/RSTS/E	Q*998-UZ				
13.19	DECmail-11	Q*815-UZ				
13.21	RPG II	Q*621-UZ				
13.25	KXT-CA Peripheral Processor Tool Kit/RSX	Q*V52-UZ				
13.26	RSX-11M-PLUS DECgraph-11	Q*A10-DZ				
13.29	A-to-Z Base System for UNIBUS PDP-11	Q*713-C3				

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
13.32	DECdx/RSTS	Q*707-UZ				
13.33	ADF01/RSX Subroutine Library					
13.34	IXV-11/RSX Driver					
13.35	DRU11-C RSX-11 Driver	Q*S33-XY				
13.39	DECdx/RSX	Q*846-UZ				
13.40	A-to-Z Developer's Kit for UNIBUS PDP-11	Q*700-C3				
13.41	KMV1A RSX and Micro/RSX Development Tools	Q*S98-XY				
13.42	KMS RSX X.25 Link-Level Software	Q*770-XY				
13.43	KMV1A RSX X.25 Link-Level Software	QJS97-XY				
13.77	CT*OS Word Processing System	QA767-C3				
14.08	DIBOL-11/DECFORM	Q*528-UZ				
14.11	BASIC-PLUS-2 for RSX-11M and RSX-11M-PLUS	Q*918-UZ				
14.13	BASIC-PLUS-2 for IAS	Q*919-UZ				
14.18	Pascal/RSX	Q*128-UZ				
14.19	RSX-11M VIGL	QJS71-DZ				
14.22	KMV1A RSX and Micro/RSX HDLC Framing Software	QJS32-DZ				
14.23	RSX MDE/T-11	QJA62-DZ				
14.24	RSX-11M-PLUS DIBOL	Q*540-UZ				
14.26	COBOL-81/RSX	Q*999-UZ				

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
14.28	Micro/RSX	Q*801-AZ				
14.29	Message Router for RSX-11M-PLUS or RSTS/E					
14.31	FORTRAN-77/RSX	Q*668-UZ				
14.33	RSX-11/PROVUE	QJS83-DZ				
14.35	RSX-11M	QJ628-UZ				
14.39	PLXY-11M	Q*S90-XM				
14.43	PCL-11M	Q*S31-XY				
14.47	MINC BASIC	Q*V31-DZ				
14.49	FORTRAN-77/RSTS/E	Q*453-UZ				
14.50	FORTRAN-77/IAS	Q*331-ED				
14.53	VSV11-M/M-PLUS Driver	Q*S27-XY				
14.54	BASIC-PLUS-2 for RSTS/E	Q*916-UZ				
14.56	CORAL 66	Q*071-EM				
14.62	RGL/11	Q*123-UZ				
14.63	FORTRAN IV/RSX	Q*230-UZ				
14.64	IEC11-M	Q*S02-XY				
14.70	RSX-11M-PLUS	Q*505-UZ				
14.71	PLXY-11-PLUS and PLXY-11/RSTS	Q*S95-XM				
14.72	BCP	Q*S05-AY				
14.75	PMCS					
14.76	CMR11/CMV11 Software Driver RX01	Q*S28-XY				
14.77	FORTRAN IV/IAS	Q*231-UZ				

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
14.79	Micro/RSX FORTRAN-77 DEBUG	Q*804-UZ				
14.81	FORTRAN-77 DEBUG/IAS	Q*440-UZ				
14.82	RSX-11M-PLUS DECtype	Q*038-UZ				
14.83	MicroPower/Pascal-RSX	Q*030-UZ				
14.84	DECtap Manufacturing System	Q*AD4-DZ				
14.85	SHOP FLOOR GATEWAY	Q*230-UZ				
14.86	DECtap Accounts Receivable System	Q*A23-UZ				
14.87	DECtap Base System	Q*A21-UZ				
14.88	DECtap Payroll System	Q*A22-UZ				
14.89	DECtap Distribution Option	Q*A26-UZ				
14.90	DECtap Distribution Total Solution	Q*A28-UZ				
14.91	DECtap Accounts Payable and Purchasing System	Q*A24-UZ				
14.92	DECtap General Ledger Fixed Assets Systems	Q*A25-UZ				
14.93	DECtap Manufacturing Option	Q*A27-UZ				
15.06	DPM	Q*651-UZ				
15.07	I/O Subsystem Handler for IP112, IP113, IPV12, IP302, and DPM50					
15.11	DPM-PLUS	Q*671-UZ				
15.18	DECdataway Intelligent System					
15.24	RSTS/E DECgraph-11	Q*A10-DZ				
15.32	LAT-11	Q*335-UZ				

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
15.44	LSP-11	Q*724-UZ				
15.60	GAMMA-11 F/B	Q*721-DZ				
15.90	LSI-11 Microprogramming Tools					
16.51	ULTRIX-11	Q*088-UZ				
18.03	Micro/RSX COBOL-81	Q*802-UZ				
18.04	Micro/RSX F77	Q*803-UZ				
18.05	Micro/RSX DIBOL	Q*807-UZ				
18.06	Micro/RSX BASIC-PLUS-2	Q*805-UZ				
18.07	Micro/RSX PDP-11 Pascal	Q*806-UZ				
18.08	Micro/RSTS COBOL-81	Q*808-UZ				
18.09	Micro/RSTS BASIC-PLUS-2	Q*809-UZ				
18.10	Micro/RSTS FORTRAN-77	Q*810-UZ				
18.11	Micro/RSTS FORTRAN-77 DEBUG	Q*811-UZ				
18.13	Micro/RSX SORT/MERGE	Q*812-UZ				
18.14	Micro/RSX DECtype	Q*038-UZ				
18.15	Micro/RSX DATATRIEVE-11	Q*819-UZ				
18.16	A-to-Z Base System for MicroPDP-11	Q*950-UZ				
18.17	A-to-Z Data Inquiry for PDP-11	Q*952-UZ				
18.18	A-to-Z Word Processing for PDP-11	Q*951-UZ				
18.19	A-to-Z Business Graphics for PDP-11	Q*953-UZ				
18.20	A-to-Z Developer's Kit for MicroPDP-11	Q*954-UZ				
18.21	Micro/RSX DECgraph-11	Q*A10-DZ				
18.22	Micro/RSTS DECgraph-11	Q*A11-DZ				

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
18.24	MicroPower/Pascal-Micro/RSX	Q*029-UZ				
18.25	Multiuser Digital Accounting System					
18.26	A-to-Z Electronic Mail	Q*955-UZ				
18.31	A-to-Z Document Transfer for PDP-11	Q*957-UZ				
18.32	Micro/RSX 2780/3780 Emulator	Q*D84-UZ				
18.48	Peripheral Processor Tool Kit Micro/RSX	Q*V52-UZ				
19.12	MicroPower/Pascal-RT	Q*047-DZ				
23.04	DX/TOPS-20 WPS-8 to Host Software Utility	Q*708-DZ				
25.01	VAX/VMS	Q*001-UZ		Q*001-1P	Q*001-JP	Q*001-JZ
25.02	MUX200/VAX	Q*070-UZ	Q*070-QZ	Q*070-1P	Q*070-JP	Q*070-JZ
25.03	DECnet - VAX/VMS Network Software	Q*D05-UZ	Q*D05-QZ	Q*D05-1P	Q*D05-JP	Q*D05-JZ
25.04	COBOL	Q*099-UZ	Q*099-QZ	Q*099-1P	Q*099-JP	Q*099-JZ
25.05	DECOR	Q*451-UZ	Q*451-QZ	Q*451-1P	Q*451-JP	Q*451-JZ
25.06	VAX-11/780 Diagnostics Extended					
25.07	VAX 2780/3780 Protocol Emulator	Q*111-UZ	Q*111-QZ	Q*111-1P	Q*111-JP	Q*111-JZ
25.08	VAX DSM	Q*130-UZ	Q*130-QZ	Q*130-1P	Q*130-JP	Q*130-JZ
25.09	VAX-11/780 Microprogramming Tools	Q*109-DZ				
25.11	Pascal	Q*126-UZ	Q*126-QZ	Q*126-1P	Q*126-JP	Q*126-JZ
25.12	BLISS-32 Implementation Language	Q*106-UZ	Q*106-QZ	Q*106-1P	Q*106-JP	Q*106-JZ
25.14	PDP-11 DATATRIEVE/VAX	Q*105-UZ	Q*105-QZ			
25.16	FORTRAN	Q*100-UZ	Q*100-QZ	Q*100-1P	Q*100-JP	Q*100-JZ

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
25.17	FORTRAN IV/VAX to RSX	Q*107-UZ	Q*107-QZ	Q*107-1P	Q*107-JP	Q*107-JZ
25.21	VAX 3271 Protocol Emulator	Q*112-UZ	Q*112-QZ	Q*112-1P	Q*112-JP	Q*112-JZ
25.25	DX/VMS					
25.30	PL/I	Q*114-UZ	Q*114-QZ	Q*114-1P	Q*114-JP	Q*114-JZ
25.31	APL	Q*020-UZ	Q*020-QZ	Q*020-1P	Q*020-JP	Q*020-JZ
25.36	BASIC	Q*095-UZ	Q*095-QZ	Q*095-1P	Q*095-JP	Q*095-JZ
25.37	CORAL 66	Q*067-UZ	Q*067-QZ			
25.38	C	Q*015-UZ	Q*015-QZ	Q*015-1P	Q*015-JP	Q*015-JZ
25.40	PSI	Q*071-UZ				
25.42	PLXY-11/VAX					
25.44	VAX DATATRIEVE	Q*910-UZ	Q*898-QZ	Q*910-1P	Q*910-JP	Q*910-JZ
25.45	VS11-VAX Driver					
25.48	VAX DBMS/MICROVMS	Q*915-UZ	Q*915-QZ	Q*915-1P	Q*915-JP	Q*915-JZ
25.48	VAX DBMS	Q*899-UZ	Q*915-QZ	Q*899-1P	Q*915-JP	Q*915-JZ
25.49	DIBOL	Q*018-UZ	Q*018-QZ	Q*018-1P	Q*018-JP	Q*018-JZ
25.50	VAX ACMS	Q*Y30-UZ	Q*Y30-QZ	Q*Y30-1P	Q*Y30-JP	Q*Y30-JZ
25.51	FEPCM Software Tools Kit					
25.52	DEC/CMS	Q*007-UZ	Q*007-QZ	Q*007-1P	Q*007-JP	Q*007-JZ
25.53	VAX CDD	Q*897-UZ	Q*897-QZ	Q*897-1P	Q*897-JP	Q*897-JZ
25.56	Driver for 11C03	QE006-DZ				
25.57	DY32 DECdataway Local Area Network Software	QC220-DZ				
25.59	VAX Rdb/MicroVMS	Q*358-UZ	Q*358-QZ	Q*358-1P	Q*358-JP	Q*358-JZ

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
25.60	VAX-11/780 Basic Diagnostic Set					
25.61	VAX-11/750 Microdiagnostics					
25.62	RGL	Q*118-UZ	Q*118-QZ			
25.64	DECmail	Q*400-UZ				
25.66	VAX-11/750 G & H Format Microcode					
25.68	NTR	Q*710-UZ	Q*710-QZ			
25.69	CORAL 66/VAX to RSX Cross-Compiler	Q*075-UZ	Q*075-QZ	Q*075-1P	Q*075-JP	Q*075-JZ
25.71	TDMS	Q*711-UZ	Q*711-QZ	Q*711-1P	Q*711-JP	Q*711-JZ
25.74	IEC11-V Device Driver for VAX/VMS	Q*S03-DZ				
25.76	VAX ADE	Q*425-UZ	Q*425-QZ	Q*425-1P	Q*425-JP	Q*425-JZ
25.78	DEChealth	Q*122-UZ				
25.79	DECalc	Q*310-UZ	Q*310-QZ	Q*310-1P	Q*310-JP	Q*310-JZ
25.80	KMS11-BD/BE X.25 Link-Level Software					
25.82	LISP	Q*917-UZ	Q*917-QZ	Q*917-1P	Q*917-JZ	
25.84	VAX-11/PROVUE	Q*S83-DZ				
25.85	ALL-IN-1 Office Menu	Q*902-DZ	Q*902-QZ	Q*902-1P	Q*902-JP	Q*902-JZ
25.87	MDE	Q*A01-DZ				
25.91	VAX-11/750 Basic Diagnostic Set					
25.92	VAX-11/730 Diagnostic Set					
25.93	VAX-11/725/730 Diagnostic Set					

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
25.94	VIGL					
	VMS	Q*S31-DZ				
	RSTS	QJS71-DZ				
25.95	Courseware Authoring System	Q*450-UZ				
25.96	DN11 Driver					
25.97	DR11-C Driver					
26.03	DEC/MMS	Q*500-UZ	Q*500-QZ	Q*500-1P	Q*500-JZ	
26.04	KCT32	Q*128-DZ				
26.05	VAX RPG II	Q*631-UZ	Q*631-QZ	Q*631-1P	Q*631-JZ	
26.07	DECgraph	Q*360-UZ	Q*360-QZ	Q*360-1P	Q*360-JZ	
26.10	FMSF	Q*802-UZ	Q*802-QZ	Q*802-1P	Q*802-JP	Q*802-JZ
26.11	DECslide	Q*361-UZ	Q*361-QZ	Q*361-1P	Q*361-JP	Q*361-JZ
26.14	POLYGRAFIX	Q*211-DZ				
26.15	ReGIS	Q*202-UZ	Q*202-QZ	Q*202-1P	Q*202-JP	Q*202-JZ
26.16	FORTRAN-77/VAX to RSX	Q*138-UZ	Q*138-QZ	Q*138-1P	Q*138-JP	Q*138-JZ
26.17	DRE11-C Device Driver					
26.18	LIMS/SM	Q*456-UZ	Q*456-QZ	Q*456-1P	Q*456-JP	Q*456-JZ
26.19	VAX-11 SMRT MLR	Q*A03-UZ	Q*A03-QZ			
26.20	VAX GKS	Q*810-UZ	Q*810-QZ	Q*810-1P	Q*810-JP	Q*810-JZ
26.23	PCL	Q*S33-XM				
26.24	MicroPower/Pascal-VMS	Q*029-UZ	Q*029-QZ			
26.25	Diagnostic Program Macro Library					
26.26	BCP	Q*640-DZ				

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
26.27	WPS-PLUS/VMS	Q*AAM-UZ	Q*AAM-QZ	Q*AAM-1P	Q*AAM-JP	Q*AAM-JZ
26.29	DECpage	Q*521-UZ	Q*521-QZ	Q*521-1P	Q*521-JP	Q*521-JZ
26.30	IEX-VMS-Driver	Q*519-X5				
26.30	IEX-VMS-Driver	Q*519-XY				
26.33	Message Router for VMS	Q*733-UZ				
26.34	DECspell Verifier/Corrector	Q*650-UZ	Q*650-QZ			
26.35	LN01 Font Utility	Q*600-UZ	Q*600-QZ	Q*600-1P	Q*600-JP	Q*600-JZ
26.37	EDE	Q*760-UZ	Q*760-QZ			
26.39	VAX EDCS	Q*518-UZ	Q*380-QZ	Q*518-1P	Q*518-JP	Q*518-JZ
26.40	ULTRIX-32	Q*825-UZ	Q*825-QZ	Q*AAM-1P	Q*825-JP	Q*825-JZ
26.41	VAX-11/780 Diagnostic Set					
26.42	VAX-11/750 Diagnostic Set					
26.43	XEP	Q*728-DZ				
26.44	ALL-IN-1 Voice Messaging Support	Q*089-UZ	Q*089-QZ			
26.46	INDENT	Q*017-UZ	Q*017-QZ	Q*017-1P	Q*017-JP	Q*017-JZ
26.48	WPS-PLUS/ALL-IN-1	Q*132-UZ	Q*132-QZ	Q*132-1P	Q*132-JP	Q*132-JZ
26.49	DECprom	Q*620-UZ	Q*620-QZ			
26.52	PRODUCER	Q*040-UZ	Q*040-QZ	Q*040-1P	Q*040-JP	Q*040-JZ
26.53	PRODUCER Interpreter	Q*041-UZ	Q*041-QZ			
26.55	KMS11-BD/BE HDLC/BSC Framing Software	Q*920-DZ				
26.56	DECtype	Q*038-UZ	Q*038-QZ	Q*038-1P	Q*038-JP	Q*038-JZ
26.57	VAX VTX	Q*031-UZ	Q*031-QZ	Q*031-1P	Q*031-JZ	

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
26.58	Courseware Design System	Q*449-UZ	Q*449-QZ			
26.59	Language-Sensitive Editor	Q*057-UZ	Q*057-QZ	Q*057-1P	Q*057-JP	Q*057-JZ
26.60	VAX Ada	Q*058-UZ	Q*056-QZ	Q*058-1P	Q*058-JP	Q*058-JZ
26.61	ADF01/VMS Subroutine Library					
26.62	VAXsim	Q*060-UZ	Q*060-QZ	Q*060-1P	Q*060-JP	Q*060-JZ
26.63	VAX-11/785 Microprogramming Tools	Q*809-DZ	Q*809-QZ			
26.64	DRX11-C/VMS Driver					
26.65	TSU05 Device Driver	Q*Z99-UZ				
26.66	BASEWAY APPLICATION BUS	Q*230-UZ	Q*230-QZ			
26.68	DEC/TEST Manager	Q*927-UZ	Q*927-QZ	Q*927-1P	Q*927-JP	Q*927-JZ
26.69	DEC/Shell	Q*143-UZ	Q*143-QZ			
26.70	DEC/SNA MICROVMS	Q*044-UZ	Q*044-QZ	Q*044-1P	Q*044-JP	Q*044-JZ
26.71	DEC/SNA MVMS DHCF	Q*043-UZ	Q*043-QZ	Q*043-1P	Q*043-JP	Q*043-JZ
26.72	DEC/SNA MICROVMS DDXF	Q*042-UZ	Q*042-QZ	Q*042-1P	Q*042-JP	Q*042-JZ
26.73	VAX-11 RSX	Q*382-UZ	Q*382-QZ	Q*382-1P	Q*382-JP	Q*382-JZ
26.74	Encryption	Q*081-UZ	Q*081-QZ	Q*081-1P	Q*081-JP	Q*081-JZ
26.75	PDP-11 FORTRAN-77 DEBUG/VAX to RSX	Q*139-UZ	Q*139-QZ	Q*139-1P	Q*139-JP	Q*139-JZ
26.76	Performance and Coverage Analyzer	Q*119-UZ	Q*119-QZ	Q*119-1P	Q*119-JP	Q*119-JZ
26.77	VAX Rainbow Office Workstation	Q*935-UZ				
26.80	ALL-IN-1 System for Sales and Marketing	Q*062-DZ				
26.81	VAX-11/785 Diagnostic Set					

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
26.82	VAX 8600 Diagnostic Set					
26.89	DECjobmatch	Q*D06-UZ	Q*D06-QZ	Q*D06-1P	Q*D06-JP	Q*D06-JZ
26.90	ALL-IN-1 System for Business Operations	Q*028-UZ	Q*028-QZ	Q*028-1P	Q*028-JP	Q*028-JZ
26.91	NMCC/DECnet Monitor	Q*P42-UZ				
26.92	External Document Exchange, with IBM DISOSS	Q*761-UZ	Q*761-QZ			
26.93	VAX SCAN	Q*495-UZ	Q*495-QZ	Q*495-1P	Q*495-JP	Q*495-JZ
26.94	VAX VALU	Q*035-UZ	Q*035-QZ	Q*035-1P	Q*035-JP	Q*035-JZ
26.95	BASEVIEW	Q*796-UZ	Q*796-QZ	Q*796-1P	Q*796-JP	Q*796-JZ
26.96	NMCC/VAX ETHERnim	Q*514-UZ	Q*514-QZ	Q*514-1P	Q*514-JP	Q*514-JZ
27.02	VAX TEAMDATA	Q*741-UZ	Q*741-QZ	Q*741-1P	Q*741-JP	Q*741-JZ
27.03	VAX RALLY	Q*A86-UZ	Q*A86-QZ	Q*A86-1P	Q*A86-JP	Q*A86-JZ
27.04	OPS5	Q*913-DZ				
27.07	VAXSET	Q*966-UZ	Q*966-QZ	Q*966-1P	Q*966-JP	Q*966-JZ
27.08	VNXset Package	Q*A81-UZ	Q*A81-QZ			
27.09	VAX TU70/72 Device Driver	Q*187-UZ	Q*187-QZ			
27.10	VAX DECreporter	Q*937-UZ	Q*937-QZ	Q*937-1P	Q*937-JP	Q*937-JZ
27.12	Remote Bridge Management Software	Q*036-UZ				
27.15	VAX OSI Transport Service	Q*129-UZ				
27.17	C.A.S. Delivery System	Q*A85-UZ				
27.18	VAX DAL	Q*A84-UZ				
27.19	VAX INFO I	Q*740-UZ	Q*740-QZ	Q*740-1P	Q*740-JP	Q*740-JZ

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
27.20	VAX INFO II	Q*AB1-UZ	Q*AB1-QZ	Q*AB1-1P	Q*AB1-JP	Q*AB1-JZ
27.21	VAX INFO III	Q*739-UZ	Q*739-QZ	Q*739-1P	Q*739-JP	Q*739-JZ
27.25	VIDA	Q*B12-UZ	Q*B12-QZ	Q*B12-1P	Q*028-JP	Q*028-JZ
27.29	VAX Volume Shadowing	Q*AB2-UZ	Q*AB2-QZ	Q*AB2-1P	Q*AB2-JP	Q*AB2-JZ
27.32	Remote System Manager	Q*B13-UZ	Q*B13-QZ	Q*B13-1P	Q*B13-JP	Q*B13-JZ
27.34	VAX MAILGATE for MCI Mail	Q*742-UZ	Q*742-QZ	Q*742-1P	Q*742-JP	Q*742-JZ
27.36	VAX Xway	Q*729-UZ	Q*729-QZ	Q*729-1P	Q*729-JP	Q*729-JZ
27.37	DECalc-PLUS	Q*A98-UZ	Q*A98-QZ	Q*A98-1P	Q*A98-JP	Q*A98-JZ
27.46	VAXcluster Console System	QZV01-UZ				
27.49	AAF01/VMS Subroutine Library					
28.00	MicroVMS Workstation Software					
28.02	VAXELN Toolkit	Q*375-UZ	Q*375-QZ	Q*375-1P	Q*375-JP	Q*375-JZ
28.03	Rdb/ELN	Q*D07-DZ	Q*D07-QZ	Q*D07-1P	Q*D07-JZ	
28.04	ULTRIX-32m	Q*B17-UZ				
28.05	MicroVMS	Q4001-UZ				
28.06	MicroVMS Workstation Software	Q*A96-UZ				
28.08	MicroVMS TSV05 Device Driver	QZZ99-3Z				
28.11	A-to-Z Business Graphics for MicroVAX	Q*953-UZ				
28.12	A-to-Z Electronic Mail for MicroVAX	Q*955-UZ				
28.13	A-to-Z Base System for MicroVAX	Q*950-UZ				
28.14	A-to-Z Developer's Kit for MicroVAX	Q*954-UZ				
28.15	A-to-Z Word Processing for MicroVAX	Q*951-UZ				
28.19	VS5XX DMA Driver	Q*A83-UZ				

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
28.22	ULTRIX-32w Workstation Software					
28.23	KMV1A MicroVMS Driver	QZZ35-UZ				
28.24	KMV1A MicroVMS Development Tools	QZZ36-UZ				
28.25	KMV1A MicroVMS X.25 Link-Level Software	QZZ37-UZ				
28.30	LabStar	Q*B15-UZ				
30.07	BASIC-10, V17F; BASIC-20, V17.0	Q*004-CM				
30.12	ReGIS CAI Primer	Q*012-UZ	Q*210-QZ			
30.15	DECnet/SNA Gateway Products	Q*545-UZ	Q*545-QZ	Q*545-1P	Q*545-JP	Q*545-JZ
30.21	RTEM-11	Q*435-UZ	Q*435-QZ			
30.21	RTEM-11/RSX-11M+	Q*304-UZ				
30.21	RTEM-11/VMS VAXCL	Q*435-QZ				
30.24	TPS20 2780/3780/HASP	Q*052-DZ				
30.26	Professional Host Tool Kit DIBOL					
	VMS	Q*356-DZ	Q*356-QZ			
	RSX	QJ369-DZ				
30.27	Professional Host Tool Kit BASIC-PLUS-2	Q*352-DZ	Q*352-QZ			
30.28	Professional Host Tool Kit	Q*350-UZ	Q*350-QZ	Q*350-1P	Q*350-JP	Q*350-JZ
30.29	Professional Host Communications	Q*072-UZ	Q*351-QZ			
30.30	Professional Host Tool Kit Pascal	Q*715-DZ	Q*715-QZ			
30.31	Professional Host Tool Kit COBOL-81	Q*714-DZ	Q*714-QZ			

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
30.32	DECtype Word Processing Application	Q*038-DZ				
30.33	PDP-11 SYMDBG/RSTS LIC W/WL/E	QP233-UZ	QP139-QZ			
30.34	DECnet Router Server	Q*725-UZ				
30.35	Ethernet Terminal Server	Q*726-UZ				
30.37	Professional Real-Time Interface Library	Q*355-UZ	Q*355-QZ			
30.38	Professional Host Tool Kit FORTRAN-77	Q*353-DZ	Q*353-QZ			
30.41	DECnet Router/X.25 Gateway	Q*727-UZ				
30.42	Professional Host Tool Kit PDP-11 Symbolic Debugger	Q*421-DZ	Q*421-QZ			
30.43	DECserver 100 Terminal Server	Q*925-UZ				
30.75	WPS-PLUS/PC	QBA72-AI				
40.01	P/OS Hard Disk	QBA02-A3	QBA89-UZ			
40.05	PRO/BASIC	QBA04-A3				
40.06	PRO/Communications	QBA05-A3				
40.09	PRO/DECnet	QB014-UZ				
40.13	PROSE-PLUS	QBA11-A3				
40.14	PRO 2780/3780 Communications Application	QBA47-A3				
40.19	PRO/Tool Kit	QBA14-A3				
40.20	PRO/Tool Kit Pascal	QBA18-A3	QBA91-UZ			
40.21	PRO/Tool Kit FORTRAN-77	QBA15-A3	QB916-UZ			
40.22	PRO/Tool Kit DIBOL	QBA16-A3				

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
40.23	Professional Host Tool Kit BASIC-PLUS-2	QBA17-A3	QB915-UZ			
40.24	PRO/Tool Kit COBOL-81	QBA19-A3	QB914-UZ			
40.25	Professional Host Tool Kit FORTRAN-77 DEBUG	QBA21-A3	QB917-UZ			
40.26	PRO/DATATRIEVE	QBA43-A3				
40.30	WPS-PLUS/POS	QBA63-A3				
40.31	RT-11 on the Professional	QBA39-UZ				
40.31	RT-11 ON THE PRO	QBA39-A3				
40.35	PRO/Tool Kit Real-Time Interface Library	QBA58-A3				
40.37	Professional CTS-300	QB354-A3				
40.38	PRO/IVIS Loadable Driver and Subroutine Library					
40.39	BASIC-PLUS/RT-11 on the Professional	QB913-A3				
40.43	PRO/NAPLPS	QBA24-A3				
40.44	PRO/RDT	QBA71-A3				
40.45	Synergy	QBA76-A3				
40.46	PRO/SIGHT	QBA35-A3				
50.06	CP/M-86/80 Operating System	QV061-A3				
50.07	MS-DOS Operating System	QV062-A3				
50.10	GW-BASIC	QV080-A3				

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
50.11	WPS-PLUS/Rainbow	QVA27-A3				
50.13	Rainbow Office Workstation	Q*A31-A3	Q*935-QZ			
50.14	DECnet Rainbow	QVA03-A3				
50.15	DECnet-DOS	QVA03-AI				
50.17	Rainbow Connection	QVA16-A3				
60.01	DECmate CP/M-80 Operating System	QWA25-A3				
60.02	DECmate/WPS	QWA01-A3				
60.11	DECmate Graphics Terminal Emulator	QWA44-A3				
60.14	DECmate DBMS	QWA48-A3				
60.18	Digital Accounting System CP/M-80 Installation/Maintenance Kit	QWA23-A3				
60.19	Digital Accounting System CP/M-80 Payroll	QWA31-A3				
60.20	Digital Accounting System CP/M-80 General Ledger	QWA32-A3				
60.21	Digital Accounting System CP/M-80 Accounts Receivable	QWA33-A3				
60.22	Digital Accounting System CP/M-80 Accounts Payable	QWA34-A3				
60.24	Digital Accounting System CP/M-80 Sales Analysis	QWA41-A3				
60.25	Digital Accounting System CP/M-80 Inventory Control	QWA42-A3				

SPD – Model Number Chart (Cont.)

SPD	Product Name	Paid-Up Licenses		Periodic Payment Licenses		
		Single	Cluster	Initial	Single	Cluster
60.26	R.BASE.4000	QWA58-A3				
60.28	DECmate Office Workstation					
	Diskette	QWA05-A3	QWA06-A3			
	Hard Disk	QWA10-A3	QWA11-A3			
	System Manager	QWA14-A3	QWA15-A3			
60.30	DECmate/WPS DECspell Verifier/Corrector	QWA03-A3				

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