SHARE INC.

The principal purpose of SHARE Inc. is to foster the development, free exchange, and public dissemination of research data pertaining to SHARE computers in the best scientific tradition. To achieve these ends, SHARE conducts meetings, discussion groups, forums, panels, lectures, and other similar programs concerned with the development and exchange of research and technological data. SHARE publishes the results of its scientific research through its SHARE Secretary's Distribution (SSD) and other publications and makes such publications available to the interested public on a noncommittal and non-discriminatory basis. SHARE attempts to establish and continually improve standards for communicating computer scientific research and programming information to interested members of the public. All inquiries and requests to SHARE, other than for programs and their associated documentation elements, should be directed to:

SHARE Inc.
111 East Wacker Drive
Chicago, IL 60601
Telephone: (312) 822-0932

The SHARE Program Library Agency

The SHARE Program Library is a collection of generally useful programs created and administered to promote the exchange of technical information, to lower software development costs, and to help avoid redundant effort. Programs and their documentation are made available to all at distribution costs. The SHARE Program Library Agency (SPLA) is operated on a non-profit basis by the Triangle Universities Computation Center (TUCC) for SHARE Inc.

TUCC serves as the distribution agent for contributed programs and does not test or maintain the programs. Programs and documentation are distributed in the original form as submitted by the author. Neither TUCC nor SHARE Inc. makes any warranty, expressed or implied, as to the documentation, function, or performance of contributed programs.
HOW TO ORDER FROM SPLA

General Procedures

SHARE membership is not required to order programs from the Library. The price for programs is the same for both SHARE members and non-SHARE members.

All orders should be accompanied by either a purchase order or payment.

When ordering from SPLA, please send all materials relevant to an order (e.g., purchase orders, checks, order forms, etc.) in the same envelope. This is necessary to prevent duplication of orders.

A $5.00 handling fee is charged on all orders that are not prepaid.

All orders from outside the North American Continent must be prepaid.

All shipments will be sent via airmail (first class for U.S.A.), postpaid.

Telephone orders cannot be accepted.

All orders should be written on a SPLA order form (contained in this catalog) and sent to the following address:

SHARE Program Library Agency
Triangle Universities Computation Center
Post Office Box 12076
Research Triangle Park, NC  27709
Telephone:  (919) 549-0671 (ext. 283)

Program Orders

The standard distribution includes one copy of all machine-readable material and one copy of the documentation (some documentation is in machine-readable form only).

Only programs in the 360D, 370D, 360E or 1130 series, as indexed in this catalog, are currently shipped by SPLA.

The price of a standard distribution is $35.00 per program for orders from the North American Continent, and $40.00 per program for all others. Other applicable charges are listed below:

- The number of pages of documentation is listed at the bottom of each program abstract. An additional charge of $.05 per page is made for each page over 20 pages.

- Machine-readable material is available on 9-track 800 or 1600 bpi tapes. Do not send tapes; SPLA will provide all required materials as part of the distribution.
• Some programs require a tape longer than 600'; this is noted at the bottom of the program abstract. There is an additional charge of $5.00 per 600' (tapes are available in 600', 1200', and 2400' only).

• Punched cards may be requested for programs for which the number of cards does not exceed 1,000; a tape will be substituted for any program requiring more than 1,000 cards (except by special arrangement). Some programs include files which are not suitable to punched card distribution, e.g., print files. The availability of punched cards is noted at the bottom of each abstract.

Documentation Only Orders

Documentation can be ordered at a cost of $5.00 per document plus $.05 per page for all pages over the first 20.

Some documentation is in machine-readable form only and is unavailable as "documentation only".

Documentation availability and a page count are given at the bottom of each program abstract.

SHARE Catalog Orders

Copies of the SHARE Program Library User's Guide and Catalog of Programs are available through SPLA at a cost of $10.00. Catalogs ordered from SPLA include 4 update mailings on a calendar year basis. If an update has been mailed prior to a catalog order, the update will be shipped with the catalog.
**SHARE PROGRAM LIBRARY AGENCY**

**ORDER FORM**

Date: __________________________________________

**Ship To:** __________________________________________

**Invoice To:** __________________________________________

__________________________ Zip ____________________________

**Attention:** __________________________________________

**Program Number(s):**

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**Dist Medium**

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<tr>
<td>DO Documentation Only</td>
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<tr>
<td>CC Cards (Check catalog for availability)</td>
</tr>
<tr>
<td>T1 9-track 800 BPI</td>
</tr>
<tr>
<td>T2 9-track 1600 BPI</td>
</tr>
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</table>

ORDER AUTHORIZED BY: __________________________________________

**TITLE:** __________________________________________

**SPLA USE ONLY.**

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<td>Invoice No:</td>
<td></td>
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</table>

Send This Form & Remittance To:

SHARE Program Library Agency  
Triangle Universities Computation Center  
Post Office Box 12076  
Research Triangle Park, North Carolina 27709

**RUN NO.** ____________  
**Date Shipped:** ____________

**Note:** A $5.00 handling fee will be charged if remittance is not enclosed. All overseas orders must be prepaid. Do not send tapes. All materials will be supplied by SPLA. One copy (only) of printed documentation will be provided for each program ordered.
SPLA FEE SCHEDULE
(Effective July 1, 1976)

Program Distribution Fee (per program) - North American Continent $35.00
Program Distribution Fee (per program) - Overseas (must be prepaid) $40.00

Includes:

Prepaid air mailing
Documentation (up to 20 pages)
Magnetic tape (600') (Cards may be substituted when fewer than 1,000).

Documentation (only) Fee (up to 20 pages) $5.00
Catalog Subscription (annual) $10.00

Current catalog and four updates

Additional Charges:

Documentation in excess of first 20 pages (per page) $0.05
Handling charge (if not prepaid) $5.00
Magnetic tape in excess of 600' (per 600') $5.00

Media and services not listed will be quoted upon request.
SUBMITTAL OF PROGRAMS TO THE SHARE LIBRARY

Submittal of programs is no longer restricted to SHARE member installations provided that certain standards are met. The Library endeavors to distribute well-documented useful programs. For this reason, certain items must be included with each submittal. A complete program package includes:

- Completed and signed SHARE Library Submittal Form;
- Acknowledgement of Assistance Statement;
- Program Documentation (machine-readable preferred);
- Source Program;
- Sample Problem(s).

At the author's discretion, the following items may also be submitted:

- Object program - specify system release and type;
- Flowcharts.

The above items will be discussed in greater detail in the following sections. Questions, comments, or suggestions concerning these requirements or the SHARE Program Library at TUCC may be addressed to the SHARE Program Library Project Manager as listed in Section 1.0 of the SHARE Reference Manual.

Completed submittal packages should be mailed to SPLA at the following address:

SHARE Program Library Agency
Triangle Universities Computation Center
Post Office Box 12076
Research Triangle Park, NC 27709

The availability of these programs is announced via the SHARE Program Library User's Guide and Catalog, published as a special edition of the SSD. Periodic supplements and announcements will be included in the back of the regular SSDs. These supplements are also sent to purchasers of the SHARE Catalog.

SUBMITTAL REQUIREMENTS

Program Submittal Form

Each program submitted must include a completed and signed SHARE Program Library Submittal Form. Blank forms with instructions for completion are available from the Library. A copy of this form is shown at the end of this section.

The program submittal form is reproduced as part of the distributed program package.
Acknowledgement of Assistance Statement

Each submittal must include, in letter form on a separate sheet, signed and dated, the following statement:

To the best of my knowledge, my program entitled "...---=--=--_-._--..--=--_-=------.,._11 is free of any proprietary, secret, or confidential information belonging to any person or organization. (Continue with a. or b. below.)

a. Where I have used the work, plans, procedures, systems, programs or names of companies or individuals, I have obtained their permission to do so.

b. I have not used the work, plans, procedures, systems, programs or names of any companies or individuals.

This statement is not reproduced as part of the distributed program package.

Documentation

All documentation supporting a contributed program is reproduced for distribution (machine-readable documentation is preferred).

For non-machine-readable documentation, the following graphic guidelines should be observed:

• Submit clean copy (originals if possible).
• Use 8½ x 11 white paper, typed ON ONE SIDE ONLY, for text material.
• Pasteovers are preferred to the opaque method for correcting typographical errors.
• Provide adequate margins for all documents -- about one inch on all sides.
• Machine generated documents should use six lines to the inch spacing and not be larger than 8½ x 11 inches; a new ribbon should be used with unlined white paper; extra comments may be typed or handwritten in black ink.
• Illustrations, hand-drawn flow-charts, and layout forms should be drawn in black ink on sheets 8½ x 11 inches.
• Each page of documentation should be sequentially numbered.

The documentation should cover the items from the following list plus any other information helpful to users of the program:

• Purpose -- a concise description of the task that the program is designed to accomplish.
• Functional and mathematical methods -- briefly describe and state why the particular method was selected.
• Limitations -- range, accuracy, floating or fixed numbers, restrictions and dependencies on other programs.
• Environment requirements.
• Input/Output -- description and layouts.
• Instructions on how to use the program (control cards, data structure, etc.).
• Statement indicating the amount of testing and how the program has been used prior to submission. Include a description of the test data.
• Table of Contents (helpful in long documentation and User's Manuals).

Program

Program submittals are accepted in magnetic tape form only.

Tape Key

A tape key is required and should list the title and description of each file, followed by the data record length, blocking factor, and block length. Specify the mode of each file, e.g., Binary EBCDIC, etc. If relevant, indicate the standard IBM utility program which can be used to punch a deck or print a listing. Also specify the control card information for the utility program.

Please specify the exact number of tape marks on the tape. When reproducing the tape for distribution, SPLA utilizes the tape mark count in controlling the amount of data to be copied.

EXAMPLE: Tape Key

This volume contains 3 Files and 3 Tape Marks arranged as follows:

File 1  Assembled Object Deck
        EBCDIC
        Sequence 0001 through 0200 in cols. 77-80;
        PRG in cols. 73-75; 200 cards
        200 card images blocked 20 per block
        10 blocks of 1600 characters each
        T/M

File 2  Sample Data Input
        EBCDIC
        SMPL in cols 77-80; 160 cards
        8 blocks of 1600 characters each
        T/M
File 3  Program Source Deck
Sequence 0001 through 1160 in cols. 77-80;
SPRG in cols. 73-76; 1160 cards
1160 card images blocked 20 per block
58 blocks of 1600 characters each
T/M

NOTE: The tape key portion of the program documentation should not specify
recording track and density since these options may be specified by persons
ordering programs from SPLA. However, the original submittal tape should be
labeled with this information.

Sample Problem
A sample problem is defined for purposes of these standards as a set of test
inputs to the program and the corresponding output from the program. Listings
of the sample input and output data should be included when meaningful.

Program Package Revisions
The submittal of program revisions must always be accompanied by a new SHARE
Program Library Submittal Form and identified as a REVISION in Item 8 of that
submittal form. A completely new program package must be submitted.
SHARE PROGRAM LIBRARY SUBMITTAL FORM

This form should be completed and submitted with the program package to the SHARE Program Library Agency at the address shown above. Standards and instructions for submitting programs are in the SHARE Reference Manual, Section 6.

(1) Program Number (to be filled by SPLA) . . . . . .

(2) Title of Program . . . . . . . .

(3) System Type(s) (Machine). . . . . . . .

(4) Search Key(s) . . . . . . . . . . .

(5) Programming Systems/Languages . . .

(6) Primary Subject Code . . . . . . . . . . .

(7) Minimum System Requirements . . . .

(8) New (N) or Revision (R) (if revision, show prior Program Number in Item 1) . . . . . . . .

(9) Date of Submittal . . . . . . . . . . . . .

(10) Documentation (number of original pages submitted) . . . . . . . .

(11) Author's Name and Address . . . . . . .

(12) Direct Technical Inquiries to Name & Address (if different than Author) . . . . . . . .

(13) Submitter's Installation Membership Code . . . . . . .

(14) Abstract (should contain sufficient information for a reader to determine the value of the program). Listed on the reverse side of this form are subjects which may serve as a guide for a descriptive abstract.
SHARE PROGRAM LIBRARY SUBMITTAL FORM

Subject Guide:

a. Purpose
b. Programming Language used
c. Version and modification level or release number
d. Field of application
e. Type of routine (main program, subroutine, etc.)
f. Specific description of machine requirements

(Please attach additional pages if necessary). . . . . Total pages attached __________

An "Acknowledgement of Assistance" statement must be attached to this Submittal Form.

Permission to Publish

"I hereby give the SHARE Program Library Agency permission to reprint, reproduce, and distribute this program"

(15) Signature of Submitter and Date ________________________________

(15) Signature of Installation Addressee ________________________________

SPLA 1001 (R) Revised 11-76
# CLASSIFICATION CODES

## 00. Utility (External) Programs
- 0 Unclassified
- 1 Multiple Utility
- 2 Flowcharting
- 3 Tape Handling
- 4 Disk Handling
- 5 Drum and Direct Data Devices
- 6 Graphic Display Devices

## 01. Utility (Internal) Programs
- 0 Unclassified
- 1 Loading
- 2 Clear/Reset Memory
- 3 Check Sum Accumulative and Correction
- 4 Internal Housekeeping
- 5 Dump to Reload/Restore Operations
- 6 File Organization
- 7 Self Checking Digit
- 8 Packed Data Handlers

## 02. Diagnostics
- 0 Unclassified
- 5 Status Recorders

## 03. Programming Systems
- 0 Unclassified
- 1 Assemblers
- 2 Compilers
- 3 Interpretive Systems
- 4 Input/Output Control
- 5 Report Generators
- 6 Preprocessing and Editing
- 7 Macros and Macro Generators
- 8 Functions and Subroutines

## 04. Testing and Debugging
- 0 Unclassified
- 1 Dumping
- 2 Tracing
- 3 Test Data Preparation
- 4 Testing Systems
- 5 Break Point Printing
- 6 Memory Verification and Searching

## 05. Executive Routines
- 0 Unclassified
- 1 Monitor
- 2 Supervisor
- 3 Disassembly and Derelativizing
- 4 Relativizing
- 5 Relocation

## 06. Data Handling
- 0 Unclassified
- 1 Sorting
- 2 Merging
- 3 Data Transmission
- 4 Tape Operations
- 5 Conversion and/or Scaling
- 6 Character and Symbol Manipulation
- 7 Information Classification, Storage, and Retrieval
- 8 List Processing
- 9 Bit String

## 07. Input
- 0 Unclassified
- 1 Binary
- 2 Octal
- 3 Decimal
- 4 BCD
- 5 Hexadecimal
- 6 Composite

## 08. Output
- 0 Unclassified
- 1 Binary
- 2 Octal
- 3 Decimal
- 4 BCD
- 5 Hexadecimal
- 6 Plotting
- 7 Display
- 8 Composite

## 09. Service Routines; Programming Aids
- 0 Unclassified
- 1 Program Timers
- 2 Interrupt Handlers
- 3 Source Language Programming Aids
10. Systems Analysis
   0 Unclassified
   1 Network Design
   2 File and Core Requirement
   3 Systems Design
   4 Configurator

11. Simulation of Computers and Components
   0 Unclassified
   1 Computers
   2 Peripheral Equipment
   3 System Component or Feature
   4 Pseudo-Computer

12. Conversion of Programs and Data
   0 Unclassified
   1 Data Conversion
   2 Computer Language Translators

13. Statistical
   0 Unclassified
   1 Descriptive
   2 Univariate and Multivariate Parametric
   3 Non-Parametric
   4 Time Series and Auto Correlation
   5 Probability Distribution Sampling, and Random Number Generators
   6 Correlation and Regression Analysis
   7 Analysis of Variance and Covariance
   8 Sequential Analysis
   9 Discriminant Analysis

14. Internal Information Transfer
   0 Unclassified
   1 Drum
   2 Disk
   3 Tape
   4 Relocation
   5 Direct Data Devices

15. Management Science/Operations Research
   0 Unclassified
   1 Simulations
   2 Linear Programming
   3 Non-Linear Programming/Constrained Optimization
   4 Scheduling/Critical Path/Pert/Less
   5 Games, Game Like Models and Game Theory
   6 General Problem Solvers
   7 Inventory Control
   8 Transportation and Network Codes

16. Engineering
   0 Unclassified
   1 Aeronautical
   2 Civil
   3 Chemical
   4 Electrical
   5 Mechanical and Hydraulic
   6 Petroleum
   7 Nuclear
   8 General

17. Sciences
   0 Unclassified
   1 General
   2 Nuclear Physics
   3 Chemistry
   4 Geology, Oceanography, and Geophysics
   5 Biology
   6 Social and Behavioral
   7 Astronomy and Celestial Navigation

18. Nuclear Codes
   0 Unclassified

19. Financial
   0 Unclassified
   1 Investing and Borrowing
   2 Capital Stock
   3 Taxes
   4 Cash Custody and Forecasting
   5 General Accounting
   6 Auditing
   7 Banking Operations
20. Cost Accounting
   0 Unclassified
   1 Material Only
   2 Labor Only
   3 Work in Progress

21. Payroll and Benefits
   0 Unclassified
   1 Payroll
   2 Employee Benefits
   3 Profit Sharing
   4 Retirement
   5 Insurance
   6 Credit Union

22. Personnel
   0 Unclassified
   1 Recruiting and Hiring
   2 Inventorying Employees
   3 Training
   4 Performance Review
   5 Administering Wages and Salary

23. Manufacturing
   0 Unclassified
   1 Scheduling/Loading
   2 Job Reporting
   3 Bill of Materials Processors
   4 Numerical Control
   5 Control Systems

24. Quality Assurance/Reliability
   0 Unclassified
   1 Testing
   2 Performance Analysis

25. Inventory
   0 Unclassified
   1 Stocking and Issuing
   2 Inventory Analysis
   3 Equipment and Tool Inventory and Maintenance

26. Purchasing
   0 Unclassified
   1 Preparing Purchase Orders
   2 Matching Invoices
   3Accounts Payable
   4 Purchase Analysis

27. Marketing
   0 Unclassified
   1 Sales and Billings Forecasting
   2 Promotion and Advertising
   3 Bid or Request Analysis
   4 Distribution or Territory Analysis

28. Sales Entered and Billed
   0 Unclassified
   1 Order Entry and Scheduling
   2 Invoicing
   3 Accounts Receivable
   4 Sales and Billing Analysis
   5 Backlog Reporting

29. General Business Services
   0 Unclassified
   1 Records Retention
   2 Forms Management
   3 Transportation
   4 Printing and Reproduction

30. Demonstrations
   0 Unclassified
   1 Display
   2 Participation

32. Graphics
   0 Unclassified
   1 Cathode-Ray Tube (CRT)
   2 Hard Copy Devices

34. Logical and Symbolic
   0 Unclassified
   1 Formal Logic
   2 Symbol Manipulation
40. Arithmetic Routines

0 Unclassified
1 Real Numbers
2 Complex Numbers
3 Decimal
4 Floating Point
5 Integer Arithmetic
6 Number Theory

41. Elementary Functions

0 Unclassified
1 Trigonometric
2 Hyperbolic
3 Exponential and Logarithmic
4 Roots and Powers
5 Geometry
6 Logical and Rounded
7 Higher Transcendental Functions

42. Polynomials and Special Functions

0 Unclassified
1 Evaluation of Polynomials
2 Roots of Polynomials
3 Evaluation of Special Functions
4 Simultaneous Non-Linear Algebraic Equations
5 Simultaneous Transcendental Equations
6 Summation of Series, Convergence Acceleration
7 Algebraic Operations on Polynomials and Power Series

43. Operations on Functions and Solutions of Differential Equations

0 Unclassified
1 Numerical Integration
2 Numerical Solutions of Ordinary Differential Equations
3 Numerical Solutions of Partial Differential Equations
4 Numerical Differentiation
5 Integral Equations
6 Integral Transforms and Their Discrete Analogues

44. Interpolation and Approximations

0 Unclassified
1 Table Look-Up and Interpolation
2 Curve Fitting
3 Smoothing
4 Extrema of Functions
5 Summation of Series/Convergence Acceleration

45. Operations on Matrices, Vectors, and Simultaneous Linear Equations

0 Unclassified
1 Matrix Operations
2 Eigenvalues and Eigenvectors
3 Determinants
4 Simultaneous Linear Equations
5 Vector Analysis

50. Insurance

0 Unclassified
1 Life
2 Fire and Casualty
3 Pension and Welfare

70. Communications and Networking

0 Unclassified

99. Unclassified

0 Miscellaneous
Organization of the Catalog

The Catalog is divided into three parts:

- Table of Contents;
- KWIC Index of Program Titles;
- Abstracts of Available Programs.

The Table of Contents and the Abstracts are listed in program number order. The KWIC Index of Program Titles gives the program number as the reference point.

All currently available programs have the prefix 360D, 360E, 370D, or 1130. Pre-3000, 3000, and 7000 series programs are not available through SPLA. It is possible to obtain some of these programs from the following address:

Mr. Robert Bell
Campus Computing Network (C012)
UCLA
Los Angeles, CA 90024
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<th>PROGRAM NUMBER</th>
<th>PROGRAM TITLE</th>
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<td>COMPRESSED SOURCE LIBRARY SYSTEM</td>
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<tr>
<td>360D-00.1.016</td>
<td>IBM S/360 MODEL 20 MULTIUTILITY PROGRAM</td>
<td>9</td>
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<tr>
<td>360D-00.2.001</td>
<td>BPS/DOS/TOS FORTRAN FLOWCHART PROGRAM</td>
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<td>360D-00.4.014</td>
<td>CHANGE1 - OS/360 DASD EXPIRATION DATE WRITER</td>
<td>10</td>
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<tr>
<td>360D-00.4.019</td>
<td>SUSAN, DISK MAPPING PROGRAM</td>
<td>10</td>
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<tr>
<td>370D-00.4.020</td>
<td>DASD ALTERNATE TRACK ANALYSIS (ALTTRACK)</td>
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<tr>
<td>370D-00.4.021</td>
<td>DASD SEEK MAPPING AID (SEEKER)</td>
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<td>360D-00.5.007</td>
<td>DIRECT ACCESS VOLUME COPY PROGRAM</td>
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<td>360D-00.5.008</td>
<td>TSO DATASET MIGRATION AND MAINTENANCE PACKAGE, FATSO</td>
<td>12</td>
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<td>360D-00.5.009</td>
<td>VARIABLE LENGTH RECORD DELETION SUBROUTINE, VBDMDLET</td>
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<td>360D-00.6.008</td>
<td>I02260 DISPLAY/ATTENTION PACKAGE</td>
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<tr>
<td>360D-00.6.011</td>
<td>A HYPERTEXT EDITING SYSTEM FOR THE S/360 USING THE 2250 DISPLAY</td>
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<td>360D-01.0.010</td>
<td>ONE-WAY ENCRYPTING ALGORITHM FOR PASSWORD PROTECTION</td>
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<td>360D-01.4.003</td>
<td>OPERATING SYSTEM ACCOUNTING</td>
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<td>360D-01.4.009</td>
<td>SUPER-SCRATCH (SUPERSCR)</td>
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<td>STENO TO ENGLISH TRANSLATION</td>
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<td>MULTIPROGRAMMING SYSTEM (MPS)</td>
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<td>360D-03.0.015</td>
<td>GEMS - A GRAPHICAL EXPERIMENT META SYSTEM</td>
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<tr>
<td>360D-03.1.014</td>
<td>FAST-ASSEMBLER-INTERPRETER FOR S/360 AND S/370 ASSEMBLER LANGUAGE (VERSION 4), SPASM</td>
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<tr>
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<td>THE SIMSCRIPT II PROGRAMMING LANGUAGE</td>
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<td>360D-03.2.015</td>
<td>THE XPL COMPILER GENERATOR SYSTEM</td>
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<td>360D-03.2.016</td>
<td>*1 (STAR-1) - LIST PROCESSING LANGUAGE</td>
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<td>PAPER SAVING MODIFICATIONS TO FORTRAN H AND G WITH NOSOURCE OPTION</td>
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<td>360D-03.3.010</td>
<td>SNAP PROCESSOR (PROTOTYPE)</td>
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<td>360D-03.3.011</td>
<td>COMIT/360</td>
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<td>360D-03.3.013</td>
<td>SHARE FORMAC/FORMAC73</td>
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SUBPROGRAMS FROM OTHER LANGUAGES.

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COMBINED SOURCE LIBRARY SYSTEM

AUTHOR: P. MICHAEL HENDERSON

DIRECT TECHNICAL INQUIRIES TO:
P. MICHAEL HENDERSON
MIDDLE SOUTH SERVICES
200 WEST BANK EXPRESSWAY
GRETRA, LOUISIANA 70053

DESCRIPTION - THE COMBINED SOURCE LIBRARY SYSTEM ALLOWS A USER TO EASILY ADD, REPLACE OR CHANGE AND Optionally COMPIL/ASSEMBLE SOURCE CODE ON A DIRECT ACCESS COMPRESSED LIBRARY. IN ADDITION, A TRANSPORTABLE COPY OF THE SOURCE CODE IN UNCOMPRESSED EBCDIC FORM MAY ALSO BE PRODUCED. THE SYSTEM HAS PROVED TO BE ABLE TO PRODUCE COMPRESSION FACTORS OF ABOUT 3/1 FOR MOST PROGRAMMING LANGUAGES. THE SYSTEM WAS WRITTEN FOR AND TESTED ON AN IBM 370 MACHINE USING OS/360 MVT RELEASE 20.6 AND 21.6. THERE APPEARS TO BE NO REASON WHY THE SYSTEM WILL NOT OPERATE UNDER MFT OR VS1 BUT IT HAS NOT BEEN SUBMITTED TO ANY FORMAL TESTING ON EITHER SYSTEM, HOWEVER, THE SYSTEM AS WRITTEN WILL NOT OPERATE ON A 360 MACHINE DUE TO THE USE OF 370 INSTRUCTIONS. THE 370 INSTRUCTIONS ARE NOT IRREPLACABLE AND THE SYSTEM COULD BE CONVERTED TO OPERATE ON A 360 MACHINE BY A USER INSTALLATION IF DESIRED.

THE COMBINED SOURCE LIBRARY SYSTEM IS WRITTEN IN IBM OS/360 ASSEMBLER F AND REQUIRES THE IBM PROGRAMS IEBUDPTE, IEBCOPY, AND IEBMOVE TO GENERATE AND OPERATE THE SYSTEM.

PROGRAMMING LANGUAGE - OS/360 ASSEMBLER F

MINIMUM SYSTEM REQUIREMENTS - OS/360, S/370 HARDWARE

DOCUMENTATION: 52 PAGES, $1.60 ADDITIONAL CHARGE.
CARD COUNT: 8,850 APPROXIMATE.
SUBMITTAL/REVISION DATE: 2/74.

IBM S/360 MODEL 20 MULTIUTILITY PROGRAM

AUTHOR: R. KOLAR

DIRECT TECHNICAL INQUIRIES TO:
TECHNICAL ASSISTANCE CURRENTLY NOT AVAILABLE


ONCE THE PROGRAM IS LOADED, SEVERAL UTILITY FUNCTIONS CAN BE PERFORMED CONSECUTIVELY BY INTERROGATING THE DATA SWITCHES ON THE CONSOLE. ANY OF THE FUNCTIONS - SINGLE SPACE (EBCDIC LIST), REPRODUCE, AND INTERPRET MAY BE PERFORMED SIMULTANEOUSLY ON A SINGLE PASS. THE PROGRAM USES A CARD SCANNING ALGORITHM TO DETERMINE THE DATA CONTENT OF EACH SOURCE CARD SO THAT THE REPRODUCING AND INTERPRETING FUNCTIONS ARE PERFORMED WITH A HIGHER DEGREE OF EFFICIENCY.

PROGRAMMING SYSTEMS - WRITTEN IN BASIC ASSEMBLER LANGUAGE.

MINIMUM SYSTEM REQUIREMENTS - 2020 CPU (4K), 2203 PRINTER (120 PRINT POSITIONS), 2560 MCFM (WITH INTERPRETING
CONTINUED FROM PRIOR COLUMN

FEATURE). THE PROGRAM CAN ALSO BE USED WITH OTHER INPUT/OUTPUT UNITS BY MODIFYING THE SOURCE DECK.

DOCUMENTATION: 18 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 100 APPROXIMATE.
SUBMITTAL/REVISION DATE: 07/68

360D-00.2.001
BPS/DOS/TOS FORTRAN FLOWCHART PROGRAM
AUTHOR: G. E. GAUTNEY, JR.
DIRECT TECHNICAL INQUIRIES TO:
G. E. GAUTNEY, JR. DDP
DEPUTY DIRECTOR FOR COMPUTING RESOURCES
COMMONWEALTH OF VIRGINIA
DIVISION OF AUTOMATED DATA PROCESSING
8TH STREET OFFICE BUILDING
RICHMOND, VIRGINIA 23219

DESCRIPTION - THE BPS/DOS/TOS FORTRAN FLOWCHART PROGRAM IS INTENDED PRIMARILY AS A DEBUGGING DOCUMENTATION AID. IT ACCEPTS AS INPUT BPS, DOS, OR TOS FORTRAN SOURCE PROGRAMS AND Prepares Automatically A BLOCK DIAGRAM FLOW CHART OF THE INPUT PROGRAM.

PROGRAMMING SYSTEMS - PROGRAM SOURCE LANGUAGE IS BPS FORTRAN BUT CAN ALSO BE USED AS A DOS/TOS FORTRAN PROGRAM SINCE NO STATEMENTS UNIQUE TO EITHER VERSION OF 360 FORTRAN ARE USED.

MINIMUM SYSTEM REQUIREMENTS - THOSE NEEDED FOR BPS/DOS/TOS FORTRAN ARE ADEQUATE.

DOCUMENTATION: 18 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 100 APPROXIMATE.
SUBMITTAL/REVISION DATE: 07/68

360D-00.4.014
CHANGE1 - OS/360 DASD EXPIRATION DATE WRITER
AUTHOR: J. E. NORTH
DIRECT TECHNICAL INQUIRIES TO:
J. E. NORTH
P.O. BOX 25
WILLOW SPRINGS, ILL. 60480


PROGRAMMING SYSTEMS - PROGRAMMING LANGUAGE - OS ASSEMBLER LANGUAGE. OPERATING SYSTEM - CS/360.

MINIMUM SYSTEM REQUIREMENTS - THOSE REQUIRED BY OS/360.

DOCUMENTATION: 4 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 200 APPROXIMATE.
SUBMITTAL/REVISION DATE: 09/68

360D-00.4.019
SUSAN, DISK MAPPING PROGRAM
AUTHOR: SUSAN CANTER
DIRECT TECHNICAL INQUIRIES TO:
J. H. FULTON
COMPUTING CENTER
BOX 5445
N. C. STATE UNIVERSITY
RALEIGH, NORTH CAROLINA 27607
CONTINUED FROM PRIOR COLUMN

DESCRIPTION - SUSAN IS A PROGRAM THAT MAPS DATA SETS GIVING INFORMATION NEEDED TO RECREATE THE DATA SET, CREATION DATE, EXPIRATION DATE, NUMBER OF EXTENTS, AND TRACKS AND RECORDS USED. THIS INFORMATION CAN BE GIVEN FOR A SINGLE DATA SET, A GROUP OF DATA SETS, OR ALL DATA SETS FROM ONE TO TWENTY VOLUMES. Optionally, the program will list the catalog entries (DATA SET NAME, DEVICE TYPE, AND VOLUME) AND LIST DIRECTORY USE INFORMATION ABOUT PDS'S. MEMBERS OF PDS'S CAN BE MAPPED TO SHOW NAMES AND ALIASES AND, FOR LOAD MODULES, SYSTEM STATUS BITS, ENTRY POINTS, SIZES, ETC. INFORMATION ABOUT THE INDEX TRACKS AND OVERFLOW AREAS AND REORGANIZATION STATISTICS ARE GIVEN FOR ISAM DATA SETS. SUSAN REQUIRES PL/I(F) OR VERSION 1, RELEASE 1.2 OR HIGHER OF THE OPTIMIZING COMPILER FOR COMPIILATION. THE LOAD MODULE DISTRIBUTED WILL EXECUTE PROVIDING THAT THE PL/I TRANSIENT LIBRARY, PROGRAM NUMBER 5734-LM5, IS AVAILABLE.

WITH SUITABLE OS MODIFICATIONS TO OPEN, SUSAN WILL ALSO SHOW THE DATE OF THE LAST OPEN AND NUMBER OF TIMES OPENED.

PROGRAMMING LANGUAGE - PL/I

MINIMUM SYSTEM REQUIREMENTS - OS/360

DOCUMENTATION: 13 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 1480 CARDS APPROXIMATE.
SUBMITTAL/REVISION DATE: 6/74

370D-00.4.020
DASD ALTERNATE TRACK ANALYSIS (ALTTRACK)

AUTHOR: BILL SCHMIDT

DIRECT TECHNICAL INQUIRIES TO:
BILL SCHMIDT
LITTON RESTON COMPUTER CENTER
1831 MICHAEL FARADAY DRIVE
RESTON, VA 22070

DESCRIPTION - THIS PROGRAM ANALYZES DASD VOLUME SURFACES FOR DEFECTIVE TRACKS. A LISTING OF ALL MARKED DEFECTIVES AND ASSIGNED ALTERNATES BY RELATIVE TRACK AND CCHH IS GENERATED. ALTTRACK HAS BEEN SUCCESSFULLY TESTED ON 2314, 3330-1, AND 3330-11.

PROGRAMMING LANGUAGE - ASSEMBLER F.

MINIMUM SYSTEM REQUIREMENTS - 370/VS 12K VIRTUAL.

DOCUMENTATION: 3 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 380 APPROXIMATE.
SUBMITTAL/REVISION DATE: 4/75.

370D-00.4.021
DASD SEEK MAPPING AID (SEEKER)

AUTHOR: BILL SCHMIDT

DIRECT TECHNICAL INQUIRIES TO:
BILL SCHMIDT
LITTON RESTON COMPUTER CENTER
1831 MICHAEL FARADAY DRIVE
RESTON, VA 22070

DESCRIPTION - THIS PROGRAM FACILITATES THE ATTACHMENT OF HARDWARE PROBES FOR SEEK MAPPING ON DASD SPINDLES. THE PROGRAM DOES ONE SEEK TO EACH HEAD ON THE VOLUME, STARTING FROM CCHH 0000. THERE IS NO OUTPUT FOR NORMAL PROGRAM COMPLETION. SEEKER HAS BEEN SUCCESSFULLY TESTED ON 3330-1 AND 3330-11. ONE EXCP IS PERFORMED TO EACH PHYSICAL TRACK IN BETWEEN TWO WTOR'S. THE WTOR'S ARE ISSUED TO ALLOW THE HARDWARE MONITOR TO BE STARTED AND STOPPED.

PROGRAMMING LANGUAGE - ASSEMBLER F.

MINIMUM SYSTEM REQUIREMENTS - 370/VS 12K VIRTUAL.

DOCUMENTATION: 3 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 225 APPROXIMATE.
SUBMITTAL/REVISION DATE: 4/75.
DIRECT ACCESS VOLUME COPY PROGRAM

AUTHOR: KARL BARNHARDT

DIRECT TECHNICAL INQUIRIES TO:
KARL BARNHARDT
BELL TELEPHONE LABORATORIES, INC.
6200 E. BROAD ST.
COLUMBUS, OHIO 43213

DESCRIPTION - THIS UTILITY PROGRAM COMPRESSES USED DIRECT ACCESS SPACE ON AN OS VOLUME INTO CONTIGUOUS AREAS THEREBY GATHERING FREE AREAS INTO ONE OR MORE LARGER FREE AREAS. THIS IS DONE BY COPYING ALL DATA SETS FROM ONE DIRECT ACCESS VOLUME TO ANOTHER VOLUME OF THE SAME TYPE. INDEXED SEQUENTIAL AND UNMOVABLE DATA SETS ARE COPIED TO THE SAME LOCATION ON THE RECEIVING VOLUME AS THEY OCCUPIED ON THE ORIGINAL VOLUME. THE USED EXTENTS OF ALL REMAINING DATA SETS ARE ALLOCATED ON THE RECEIVING VOLUME STARTING AT THE FIRST AVAILABLE TRACK AFTER THE VOLUME LABEL AND PROCEEDING UPWARD. PARTITIONED DATA SETS ARE NOT COMPRESSED WHEN COPIED. IF A CATALOG DATA SET EXISTS IT IS ALLOCATED NEXT TO THE VTOC. ASSUMING SOME ORIGINAL FRAGMENTATION THE RESULT IS A DIRECT ACCESS VOLUME WITH LARGER CONTIGUOUS FREE AREAS. THE NUMBER OF RESULTING FREE AREAS DEPENDS ON THE NUMBER AND THE LOCATION OF LOCATION DEPENDENT DATA SETS.

PROGRAMMING LANGUAGE - OS ASSEMBLER (G OR H)

MINIMUM SYSTEM REQUIREMENTS - OS/360

DOCUMENTATION: 6 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 1,100 APPROXIMATE.
SUBMITTAL/REVISION DATE: 7/73

TSO DATASET MIGRATION AND MAINTENANCE PACKAGE, FATSO

AUTHORS: MICHAEL W. ROHRER
JAMES E. REMMEL

DIRECT TECHNICAL INQUIRIES TO:
MICHAEL W. ROHRER
LORENDAS PROJECT
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
BLACKSBURG, VIRGINIA 24061
TELEPHONE (703) 951-6506

DESCRIPTION - THE FATSO PACKAGE IS INTENDED TO PROVIDE A COMPREHENSIVE SET OF PROGRAMS FOR MAINTAINING DISK PACKS USED TO HOLD DATASETS GENERATED BY TSO USERS UNDER OS/MVT/TSO. THE PACKAGE INCLUDES:
• THE PRIMARY MAINTENANCE PROGRAM, FATSO;
• A REPLACEMENT CSECT FOR IEHMOVE TO PERMIT DATASET MIGRATION TO OFF-LINE TAPE;
• A TSO COMMAND TO PERMIT RETRIEVAL OF MIGRATED DATASETS;
• TWO REPORT AND CATALOG MAINTENANCE PROGRAMS FOR MIGRATED DATASETS;
• FOUR TSO COMMAND PROCESSORS USED FOR DATASET MAINTENANCE;
• INFORMATION ON SEVERAL PERTINENT SUPERZAPS INCLUDED IN THE DOCUMENTATION.

ALL PROGRAMS ARE IN OS ASSEMBLER (F) EXCEPT THE TWO REPORTS, WHICH ARE IN PL/1 (F).

THE PACKAGE IS DESIGNATED TO RUN ON ANY IBM S/360 OR S/370 SYSTEM RUNNING OS/MVT/TSO, AND HAVING DISK AND TAPE UNITS. some code may require modification for a particular installation's requirements, and these places have been clearly marked in the comments accompanying the source code. FOR THE MOST PART, HOWEVER, THE CODE HAS BEEN KEPT INSTALLATION-INDEPENDENT.

DUE TO DEPENDENCE ON VARIOUS CS FEATURES AS WELL AS THE OS CATALOG, THE PACKAGE WILL NOT RUN ON VS/TSO.

PROGRAMMING LANGUAGE - OS ASSEMBLER (F), PL/1 (F).

MINIMUM SYSTEM REQUIREMENTS - CS/360 (MVT), TSO.

DOCUMENTATION: 5 PAGES, NO ADDITIONAL CHARGE.
(PLUS MACHINE READABLE DOCUMENTATION)
CARD COUNT: 6300 APPROXIMATE.
CONTINUED FROM PRIOR COLUMN

SUBMITTAL/REVISION DATE: 12/73.

360D-00.5.009

VARIABLE LENGTH RECORD DELETION SUBROUTINE, VBDMDLET

AUTHOR: MARK WITTE

DIRECT TECHNICAL INQUIRIES TO:
DOUGLAS KUNKEL
LIBRARY SYSTEMS
WASHINGTON STATE UNIVERSITY
PULLMAN, WA 99163

DESCRIPTION - FOR INSTALLATIONS USING IBM COMPATIBLE DIRECT ACCESS STORAGE DEVICES (DASD) AND THE BASIC DIRECT ACCESS METHOD (BDAM), USERS OF VOLATILE FILES WITH KEYED, VARIABLE LENGTH RECORDS ARE FACED WITH THE PROBLEM OF WASTED STORAGE SPACE CAUSED BY 'LOGICAL' RECORD DELETION, WHICH EVENTUALLY REQUIRES EXPENSIVE FILE REORGANIZATION.

PASSED THE RECORD ADDRESS (MBBCCHR OR TTR) OF A RECORD TO BE DELETED, VBDMDLET WILL PHYSICALLY DELETE THE RECORD IN TWO (2) I/O COUNTS, REGARDLESS OF THE NUMBER OF RECORDS ON THE TRACK OR THE RELATIVE POSITION OF THE RECORD TO BE DELETED.

WRITTEN IN IBM 360 ASSEMBLER AND IMPLEMENTED FOR THE 2314 DASD ON AN IBM 360/67 WITH OS/MVT, THE ROUTINE IS DESIGNED TO BE DEVICE DEPENDENT AND MINIMIZE CORE USAGE. THUS DYNAMIC BUFFER ALLOCATION IS EMPLOYED. THE ROUTINE REQUIRES LESS THAN 2K OF CORE STORAGE, AND SINCE IT IS REENTRANT, IT IS SUITABLE FOR EITHER ON-LINE OR BATCH MODE APPLICATION.

VBDMDLET OFFERS THE USER CONSIDERABLE SAVINGS OVER FILE REORGANIZATION COSTS SINCE ONLY TWO I/O COUNTS ARE REQUIRED FOR RECORD DELETED, AS OPPOSED TO FOUR I/O COUNTS FOR EACH RECORD RETAINED DURING REORGANIZATION.

PROGRAMMING LANGUAGE - OS ASSEMBLER

MINIMUM SYSTEM REQUIREMENTS - OS/360, 2314 OR EQUIVALENT

DOCUMENTATION: 27 PAGES, $.35 ADDITIONAL CHARGE.
CARD COUNT: 1650 APPROXIMATE.
SUBMITTAL/REVISION DATE: 8/74.

360D-00.6.008

102260 DISPLAY/ATTENTION PACKAGE

AUTHOR: H. A. GARNER

DIRECT TECHNICAL INQUIRIES TO:
TECHNICAL ASSISTANCE CURRENTLY NOT AVAILABLE.

DESCRIPTION - THE 102260 DISPLAY/ATTENTION PACKAGE PROVIDES A MEANS FOR THE FORTRAN OR ASSEMBLY LANGUAGE PROGRAMMER TO CONTROL ANY NUMBER OF IBM 2260'S, WITH CALLS FROM FORTRAN, OR SIMILAR CODE IN ASSEMBLY PROGRESS, IN A 44/PS ENVIRONMENT.

PROGRAMMING SYSTEMS - OPERATING SYSTEM REQUIRED - UNMODIFIED 44/PS, AND USES THE IO AND SCHEDULING SERVICES OF THAT SYSTEM.

MINIMUM SYSTEM REQUIREMENTS - THOSE REQUIRED OF 44/PS.

DOCUMENTATION: 8 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 620 APPROXIMATE.
SUBMITTAL/REVISION DATE: 03/68

360D-00.6.011

A HYPERTEXT EDITING SYSTEM FOR THE S/360 USING THE 2250 DISPLAY

AUTHOR: ANDRIES VAN DAM

DIRECT TECHNICAL INQUIRIES TO:
PROFESSOR ANDRIES VAN DAM
BOX P
PROGRAM IN COMPUTER SCIENCE
BROWN UNIVERSITY
PROVIDENCE, R. I. 02912

DESCRIPTION - THE HYPERTEXT EDITING SYSTEM IS A MULTIPURPOSE TEXT HANDLING SYSTEM WHICH CAN BE USED FOR TEXT EDITING AND REVISION, INFORMATION RETRIEVAL, PROGRAMMED LEARNING, TYPESETTING (THROUGH IBM'S TEXT 360 PROGRAM), AND THE PRESENTATION OF NON-SEQUENTIAL FORMS OF WRITING, CALLED HYPERTEXT.
CONTINUED FROM PRIOR COLUMN

PROGRAMMING SYSTEM - THE SYSTEM WAS WRITTEN IN ASSEMBLY LANGUAGE.

MINIMUM SYSTEM REQUIREMENTS - THE SYSTEM WILL RUN ON THE IBM SYSTEM 360/40 AND UP WITH AT LEAST 128K OF CORE STORAGE, UNDER CONTROL OF PCP, MFT (IN A 108K PARTITION), OR MVT (IN A 108K REGION). IT CURRENTLY SUPPORTS EITHER THE 2250 MODEL I (WITH AN 8K BUFFER AND THE GRAPHIC DESIGN FEATURE) OR THE 2250 MODEL III, AND REQUIRES AT LEAST ONE 2311 OR 2314 DISK DRIVE, AND A 1403 PRINTER.

DOCUMENTATION: 80 PAGES, $3.00 ADDITIONAL CHARGE.
CARD COUNT: 30,000 APPROXIMATE.
SUBMITTAL/REVISION DATE: 05/69

CONTINUED FROM PRIOR COLUMN

MINIMUM SYSTEM REQUIREMENTS - S/360 2K BYTES MEMORY

DOCUMENTATION: 13 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 1,000 CARDS APPROXIMATE.
SUBMITTAL/REVISION DATE: 10/76

360D-01.4.003
OPERATING SYSTEM ACCOUNTING

AUTHOR: D. JACOBS

DIRECT TECHNICAL INQUIRIES TO:
TECHNICAL ASSISTANCE CURRENTLY NOT AVAILABLE.

DESCRIPTION - THIS PROGRAM WAS WRITTEN TO-
1. DETERMINE TASK TIME OF EACH STEP OF JOB.
2. DETERMINE WAIT/OVERHEAD TIME OF JOB.
3. INFORM OPERATOR OF TAPE ASSIGNMENTS BY DD NAME.
4. DETERMINE STARTING ADDRESS OF PROBLEM PROGRAM RE.
5. DETERMINE MAXIMUM TAPES AND DISKS USED IN JOB.
6. PRINT ACCOUNTING INFORMATION OF JOB ON SYSOUT AND SYSTEM RESIDENCE PACK.
7. PUNCH ACCOUNTING RECORDS FROM DISK.

STEP INITIATOR HAS BEEN MODIFIED SO THAT IT ACCOMPLISHES (3), (4), AND (5) ABOVE. IT ALSO ISSUES A TIMER MACRO PRIOR TO ISSUING THE "XCTL" TC TO THE PROBLEM PROGRAM. STEP TERMINATION ACCOMPLISHES (1) AND (2) ABOVE. JOB TERMINATION ACCOMPLISHES (7) ABOVE.

PROGRAMMING SYSTEMS - RUNS UNDER OS/360.

MINIMUM SYSTEM REQUIREMENTS - THOSE REQUIRED FOR OPERATING SYSTEM/360.

DOCUMENTATION: 14 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 1,650 APPROXIMATE.
SUBMITTAL/REVISION DATE: 11/66

360D-01.0.010
ONE-WAY ENCRYPTING ALGORITHM FOR PASSWORD PROTECTION

AUTHOR: H. D. KNOBLE

DIRECT TECHNICAL INQUIRIES TO:
H. D. KNOBLE
214 COMPUTER BUILDING
THE PENNSYLVANIA STATE UNIVERSITY
UNIVERSITY PARK, PA 16802

DESCRIPTION - SUBROUTINE PURDY IS A REENTERABLE SYSTEM UTILITY PROGRAM WHICH EVALUATES A FAMILY OF MATHEMATICALLY SOUND, ONE-WAY ENCRYPTING FUNCTIONS WITH KNOWN PROPERTIES. THE ALGORITHM IS IMPLEMENTED HERE TO ENABLE 8-CHARACTER PASSWORDS TO BE IRREVERSIBLY ENCRYPTED FOR SECURITY APPLICATIONS (COMPUTER RESOURCE AUTHORIZATIONS). UNLIKE MANY EXISTING METHODS USED FOR SEVERAL CURRENT OPERATING SYSTEM SECURITY APPLICATIONS (E.G. MVS PASSWORDS), THIS METHOD DOES NOT RELY ON KEEPING THE ALGORITHM OR LIST OF ENCRYPTED KEYS SECRET; THIS IS TRUE BECAUSE NO KNOWN ALGORITHM EXISTS TO INVERT THE ENCRYPTING FUNCTION, AND IF ONE WERE DISCOVERED, DECRYPTING A KEY WOULD STILL REQUIRE, ON THE AVERAGE, MANY YEARS OF CPU TIME ON MODERN, HIGH-SPEED EQUIPMENT. BECAUSE THE FAMILY ENCRYPTING FUNCTIONS UPON WHICH THIS ROUTINE IS BASED HAS ESSENTIALLY AN INFINITE NUMBER OF PARAMETERIZATIONS, THIS IMPLEMENTATION ALLOWS COMPUTER RESOURCE AUTHORIZATION TO BE INDEPENDENT AND UNIQUE ACROSS APPLICATIONS.

PROGRAMMING LANGUAGE - STANDARD 360 ASSEMBLER
SUPER-SCRATCH (SUPERSCR)

AUTHOR: R. D. SEAWRIGHT

DIRECT TECHNICAL INQUIRIES TO:
R. D. SEAWRIGHT
INTERACTIVE DATA CORPORATION
486 TOTTEN POND ROAD
WALTHAM, MASS. 02154

DESCRIPTION - SUPERSCR IS DESIGNED TO SCRATCH ALL USER DATA SETS FROM A DIRECT ACCESS DEVICE OTHER THAN THOSE SPECIFICALLY REQUESTED TO REMAIN. A LIST OF DATA SET NAMES IS CONSTRUCTED AND PLACED IN EITHER OR BOTH OF TWO LOCATIONS:
(1) SYS1.PROCLIB, MEMBER=SAVE.
(2) SYSIN DD * WHEN SUPERSCR IS EXECUTED.
THE LIST OF DATA SET NAMES ARE THOSE THAT THE USER WILL WANT PERMANENT TO THE SYSTEM.

FOR STATISTICAL PURPOSES A SEQUENTIAL DATA SET NAMED SYS1.STATLOG CAN BE ALLOCATED INTO WHICH SUPERSCR WILL WRITE INFORMATION CONCERNING ANY PURGING OF THE DIRECT ACCESS FILES. THIS FEATURE IS OPTIONAL TO THE USER.

SUPERSCR HAS BEEN TESTED SUCCESSFULLY ON SYSTEM/360 MODELS 40, 50, AND 65 RUNNING OS/360 PCP OR MFT/I. SUPERSCR WILL RUN IN THE MINIMUM OS/360 SCHEDULER PARTITION. PROGRAM EXECUTION TIME IS NEGLIGIBLE.

PROGRAMMING SYSTEMS - RUNS UNDER OS/360.

MINIMUM SYSTEM REQUIREMENTS - S/360 MODEL 40.

DOCUMENTATION: 16 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 700 APPROXIMATE.
SUBMITTAL/REVISION DATE: 02/68

CHGPASS COMMAND PROCESSOR

AUTHOR: ARNIE BERG

DIRECT INQUIRIES TO:
ARNIE BERG
SASKCOMP
2112 8TH STREET E
SASKATOON, SASKATCHEWAN CANADA

DESCRIPTION - THE CHGPASS COMMAND PROCESSOR IS DESIGNED TO ALLOW THE TSO USER TO CHANGE ANY OF HIS LOGON PASSWORDS. THE USER MAY NOT ADD A PASSWORD. THE PROGRAM IS WRITTEN IN ASSEMBLER (F).

PROGRAMMING LANGUAGE - ASM(F)

MINIMUM SYSTEM REQUIREMENTS - S/360, TSO

DOCUMENTATION: 3 PAGES, NO ADDITIONAL CHARGE.
(PLUS MACHINE READABLE DOCUMENTATION)
CARD COUNT: 450 APPROXIMATE.
SUBMITTAL/REVISION DATE: 5/76

VTOC4MAT

AUTHOR: M. WAPNITSKY

DIRECT TECHNICAL INQUIRIES TO:

TECHNICAL ASSISTANCE CURRENTLY NOT AVAILABLE

DESCRIPTION - THE VTOC4MAT UTILITY PROGRAM WAS WRITTEN IN ASSEMBLY LANGUAGE TO PRODUCE A READABLE LIST OF THE VTOC (VOLUME TABLE OF CONTENTS) ON ANY 2311 OR 2314 DEVICE.

PROGRAMMING SYSTEMS - WRITTEN IN ASSEMBLER LANGUAGE AND OPERATES UNDER OS/360.

MINIMUM SYSTEM REQUIREMENTS - A CARD READER (OR OTHER SUITABLE SOURCE OF INPUT), A PRINTER AND A 2311 OR 2314
CONTINUED FROM PRIOR COLUMN

DIRECT ACCESS DEVICE.

DOCUMENTATION: 5 PAGES, $.25 ADDITIONAL CHARGE.
CARD COUNT: 700 APPROXIMATE.
SUBMITTAL/REVISION DATE: 08/68

360D-01.6.008
PROCESS MEMBERS OF PARTITIONED DATA SETS WITH PL/I

AUTHOR: MICHAEL BATE

DIRECT TECHNICAL INQUIRIES TO:

TECHNICAL ASSISTANCE CURRENTLY NOT AVAILABLE.

DESCRIPTION - THIS ASSEMBLY LANGUAGE SUBROUTINE ALLOWS PL/I PROGRAMMERS (OPTIMIZER OR CHECKOUT) TO PROCESS ANY NUMBER OF MEMBERS OF PARTITIONED DATA SETS, WITHOUT THE NEED OF EITHER (A) PROVIDING A DD CARD FOR EACH MEMBER OR (B) OPENING AND CLOSING THE DATA SET BETWEEN MEMBERS. MEMBERS MAY BE READ, WRITTEN, UPDATED IN PLACE, OR SCRATCHED. RECORD FORMATS F, FB, FS, FBS, V, VB, OR U CAN BE USED.

PROGRAMMING LANGUAGE - BAL (CALLED FROM PL/I OPTIMIZER-CHECK)

MINIMUM SYSTEM REQUIREMENTS - OS PL/I OPTIMIZER OR CHECKOUT ENVIRONMENT

DOCUMENTATION: 3 PAGES, NO ADDITIONAL CHARGE.
(PLUS MACHINE READABLE DOCUMENTATION)
CARD COUNT: 825 APPROXIMATE.
SUBMITTAL/REVISION DATE: 11/75

360D-03.0.010
STENO TO ENGLISH TRANSLATION

AUTHOR: OFFICE OF JOINT COMPUTER SUPPORT

DIRECT TECHNICAL INQUIRIES TO:

W. EISNER
OFFICE OF DATA PROCESSING
CENTRAL INTELLIGENCE AGENCY
WASHINGTON, DC 20505

DESCRIPTION - THE S/360 STENO TO ENGLISH PROGRAM IS DESIGNED TO TRANSLATE STENOGRAPHIC INPUT INTO ENGLISH OUTPUT. THE OUTPUT TAKES FORM IN ALL UPPER CASE WITH AN @ SIGN REPRESENTING INITIAL CAPITALIZATION.

PROGRAMMING SYSTEMS - WRITTEN IN ALC AND HAS BEEN COMPILED AND TESTED USING OS VERSION 17 ON A S/360 MODEL 40, 50 AND 65 SYSTEM.

MINIMUM SYSTEM REQUIREMENTS - STENO PROGRAM SHOULD RUN ON ANY S/360 MODEL 30 AND UP. AN ON-LINE PRINTER, 132 PRINT POSITIONS, CONSOLE TYPEWRITER, AND ONE TAPE AND 2314 DISK DRIVE ARE REQUIRED.

DOCUMENTATION: 50 PAGES, $1.50 ADDITIONAL CHARGE.
CARD COUNT: 550 APPROXIMATE.
SUBMITTAL/REVISION DATE: 06/69

360D-03.0.014
MULTIPROGRAMMING SYSTEM (MPS)

AUTHOR: DR. M.W. SACHS

DIRECT TECHNICAL INQUIRIES TO:

DR. M.W. SACHS
NUCLEAR STRUCTURE LABORATORY
YALE UNIVERSITY
NEW HAVEN, CONNECTICUT 06520

DESCRIPTION - MPS IS A MULTIPROGRAMMED OPERATING SYSTEM FOR THE 360 MODEL 44. THE SYSTEM, DESIGNED FOR REAL TIME DATA ACQUISITION, SUPPORTS MULTIPLE USERS IN A FULLY PROTECTED ENVIRONMENT. FEATURES OF THE SYSTEM INCLUDE DYNAMIC STORAGE ALLOCATION, RE-ENTRANT SUPERVISOR, FORTRAN COMPILED, LOADER EDITOR JOB CONTROL PROCESSOR, VIRTUAL
CONTINUED FROM PRIOR COLUMN

DEVICE UTILITIES, INTERTASK COMMUNICATION FACILITIES AND
OPERATOR CONTROL PROGRAMS.

PROGRAMMING SYSTEMS - 360/44 PROGRAMMING SYSTEM.

MINIMUM SYSTEM REQUIREMENTS - THE SYSTEM REQUIRES AT LEAST
64K BYTES OF CORE, FLOATING POINT FEATURE, STORAGE
PROTECTION, READER, PUNCH, PRINTER, One SDS, ONE OTHER
RANDOM ACCESS DRIVE AND ONE TAPE FOR SYSTEM MAINTENANCE.

DOCUMENTATION: 62 PAGES, $2.10 ADDITIONAL CHARGE.
CARD COUNT: 105,200 APPROXIMATE.
SUBMITAL/REVISION DATE: 10/69
REQUIRES 1200 FT. TAPE FOR DISTRIBUTION.

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360D-03.0.015
GEMS - A GRAPHICAL EXPERIMENTAL META SYSTEM
AUTHOR: JAMES E. GEORGE
DIRECT TECHNICAL INQUIRIES TO:
DR. JAMES E. GEORGE
LOS ALAMOS SCIENTIFIC LABORATORY
P.O. BOX 1663, MS 272
LOS ALAMOS, NEW MEXICO 87545

DESCRIPTION - THE IMPLEMENTATION OF GRAPHICAL LANGUAGES
AND GRAPHICAL SYSTEMS HAS BECOME TOO COMPLEX TO PERMIT
ECONOMICAL EXPERIMENTATION WITH MANY NEW LANGUAGES OR
SYSTEMS. FURTHER, MANY APPLICATIONS FUNCTION ONLY AS
AN INTERACTIVE STAND ALONE SYSTEM OR AS A SLAVE SYSTEM; SOME
ARE FURTHER RESTRICTED TO PARTICULAR INPUT OR OUTPUT
DEVICES.

A MODEL FOR GRAPHICAL SYSTEMS WITH A LINGUISTIC BASE IS
PRESENTED; THE MODEL PROVIDES SYMMETRY BETWEEN RECOGNITION
AND GENERATION OF PICTURES, ALTHOUGH EMPHASIZING GENERATION.
A MODEL FACILITATES A MORE ECONOMICAL EXPERIMENTATION
WITH GRAPHICAL SYSTEMS WITH A LINGUISTIC BASE AND PROVIDES
DEVICE DEPENDENCE. A GRAPHICAL SYSTEM DEFINED UTILIZING
GEMS CAN FUNCTION INTERACTIVELY OR AS A SLAVE SYSTEM.

THE MODEL IS IMPLEMENTED BY DEFINING ITS COMPONENTS
UTILIZING A SIMPLE PRECEDENCE TRANSLATOR WRITING SYSTEM.
THIS IMPLEMENTED GRAPHICAL MODEL IS ILLUSTRATED BY TWO
APPLICATIONS. FIRST, A TWO DIMENSIONAL MATHEMATICAL
EXPRESSION DISPLAY SYSTEM IS DEFINED AND IMPLEMENTED USING

CONTINUED FROM PRIOR COLUMN

GEMS. AND SECOND, A DRAWING SYSTEM FOR SYNTHESIZING DIGITAL
PICTURES FOR PATTERN RECOGNITION EXPERIMENTS IS ALSO DEFINED
AND IMPLEMENTED USING THE MODEL. THE USE OF BOTH
IMPLEMENTATIONS IS ILLUSTRATED IN BOTH INTERACTIVE AND SLAVE
MODES; DEVICE DEPENDENCE IS ALSO ILLUSTRATED FOR BOTH
APPLICATIONS.

PROGRAMMING LANGUAGE - PL/I (F LEVEL)
MINIMUM SYSTEM REQUIREMENTS - OS/360
DOCUMENTATION: 193 PAGES, $8.65 ADDITIONAL CHARGE.
CARD COUNT: 4,250 APPROXIMATE.
SUBMITAL/REVISION DATE: 5/73

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360D-03.1.014
FAST-ASSEMBLER-INTERPRETER FOR S/360 AND S/370 ASSEMBLER
LANGUAGE (VERSION 4), SPASM
AUTHOR: JOHN R. EHRMAN
DIRECT TECHNICAL INQUIRIES TO:
DR. JOHN R. EHRMAN
STANFORD CENTER FOR INFORMATION PROCESSING
SLAC - BIN 97
P.O. BOX 4349
STANFORD, CALIF. 94305

DESCRIPTION - THE FAST SINGLE-PASS ASSEMBLER-INTERPRETER
SYSTEM PROVIDES A PROCESSOR FOR THE SYSTEM/360/370 ASSEMBLER
LANGUAGE WITH THE FOLLOWING FEATURES: (1) ALMOST FULL
LANGUAGE COMPATIBILITY (INCLUDING LITERALS, MACROS, CSECTS
AND DSECTS) WITH THE OS ASSEMBLER LANGUAGE, (2) EXTREMELY
HIGH ASSEMBLY RATE, (3) AN OPTIONALLY INVOKED INTERPRETER
FOR THE SYSTEM/360/370 INSTRUCTION SET, (4) EXTENSIVE
AND DETAILED ASSEMBLY-TIME AND EXECUTION-TIME DIAGNOSTIC
MESSAGES AND FACILITIES, (5) SIMPLE MACRO-LIKE INSTRUCTIONS
FOR DIAGNOSTIC AND INPUT/OUTPUT OPERATIONS, (6) AN EXTENDED
SYNTAX FOR DC AND DS STATEMENTS, (7) A SUB-MONITOR WHICH
PERMITS BATCHED ASSEMBLIES AND EXECUTIONS, AND (8)
EXTENSIONS TO THE ASSEMBLER LANGUAGE. THE FEW RESTRICTIONS
ON THE LANGUAGE DERIVE FROM THE ONE-PASS LOAD-AND-GO NATURE
OF THE ASSEMBLER.

THE SYSTEM IS RE-ENTRANT AND REQUIRES 65K BYTES (DEPENDING
ON THE OPTIONS SELECTED) PLUS A WORKSPACE WHOSE SIZE IS AN
INVOCATION PARAMETER: FOR MOST STUDENT PROGRAMS AN
CONTINUED FROM PRIOR COLUMN

ADDITIONAL 10K IS AMple. ALL I/O USES QSAM, AND THE SYSTEM IS PROGRAMMED ENTIRELY IN ASSEMBLER LANGUAGE.

A GUIDE TO THE USE OF THE SYSTEM IS INCLUDED AS A FILE ON THE DISTRIBUTION TAPE.

PROGRAMMING LANGUAGE - OS ASSEMBLER F.

MINIMUM SYSTEM REQUIREMENTS - OS/360 OR DOS/360.

DOCUMENTATION: 3 PAGES, NO ADDITIONAL CHARGE.
(PLUS MACHINE READABLE DOCUMENTATION)
CARD COUNT: 32,750 APPROXIMATE.
SUBMITTAL/REVISION DATE: 6/76

360D-03.2.014
THE SIMSCRIPT II PROGRAMMING LANGUAGE

AUTHOR: P. J. KIVIAT
DIRECT TECHNICAL INQUIRIES TO:
P. J. KIVIAT
DEPARTMENT OF THE AIR FORCE
FEDERAL COMPUTER PERFORMANCE
EVALUATION AND SIMULATION CENTER
WASHINGTON, DC 20330

DESCRIPTION - THE SIMSCRIPT II COMPILER TRANSLATES SOURCE LANGUAGE INPUTS INTO ASSEMBLY PROGRAMS WHICH ARE ASSEMBLED BY AN OS MULTIPLE-ASSEMBLER INTO LINK-EDITABLE MODULES.

PROGRAMMING SYSTEMS - WRITTEN IN SIMSCRIPT II AND HAS BEEN COMPILED AND TESTED USING OS VERSION 15/16 ON A S/360 MODEL 65. IT WILL RUN UNDER MVT, MFT OR PCP. THE PROGRAM SHOULD BE STORED IN THE USER'S LOAD LIBRARY AND CALLED OUT LATER BY THE COMPIL PROCEDES.

MINIMUM SYSTEM REQUIREMENTS - COMPILATION REQUIRES CORE STORAGE OF AT LEAST 150K BYTES.

DOCUMENTATION: 57 PAGES, $1.85 ADDITIONAL CHARGE.
CARD COUNT: 19,090 APPROXIMATE.
SUBMITTAL/REVISION DATE: 06/72

360D-03.2.008
KINETIC SIMULATION LANGUAGE FOR CHEMISTRY AND BIOCHEMISTRY

AUTHOR: C. G. ROMAN
DIRECT TECHNICAL INQUIRIES TO:
D. GARFINKEL (215) 243-8122
C. B. MARBACH (215) 886-0200
MOORE SCHOOL OF ELECTRICAL ENGINEERING
UNIVERSITY OF PENNSYLVANIA
PHILADELPHIA, PA 19174

DESCRIPTION - THIS IS A SECOND REVISION OF A PROBLEM ORIENTED LANGUAGE FOR CONTINUOUS SIMULATION OF THE KINETICS OF CHEMICAL AND BIOCHEMICAL SYSTEMS. IT TRANSLATES CHEMICAL REACTIONS INTO DIFFERENTIAL EQUATIONS, SOLVES THEM BY NUMERICAL METHODS STARTING FROM SPECIFIED INITIAL CONDITIONS, AND EDITS THE RESULTS. THE STIFF DIFFERENTIAL EQUATION SOLVING METHOD OF GEAR IS INCLUDED WITH MODIFICATIONS (ROMAN ET AL., PROC. NCC, 1976, P. 793) TO SPEED THE SOLUTION AND DECREASE THE CORE MEMORY REQUIREMENT FOR LARGE PROBLEMS. THE PROGRAM AS SUBMITTED IS BATCH-PROCESSOR AND CARD-INPUT ORIENTED, IS WRITTEN IN FORTRAN AND HAS BEEN "STRUCTURED" FOR EASE OF PROGRAMMER INTERVENTION. IT SHOULD RUN ON ANY LARGE BATCH-PROCESSING MACHINE WITH FORTRAN LEVEL G OR ABOVE. A DESCRIPTION OF THE ORIGINAL VERSION HAS BEEN PUBLISHED (COMPUTERS AND BIOMEDICAL RESEARCH, 2 31, 1968); A REVISED DESCRIPTION WILL BE SUBMITTED SOON.

PROGRAMMING LANGUAGE - FORTRAN

CONTINUED FROM PRIOR COLUMN

MINIMUM SYSTEM REQUIREMENTS - SEE ABSTRACT

DOCUMENTATION: 137 PAGES, $5.85 ADDITIONAL CHARGE.
CARD COUNT: 11,000 APPROXIMATE.
SUBMITTAL/REVISION DATE: 4/73
THE XPL COMPILER GENERATOR SYSTEM

AUTHORS: W. M. MCKEEMAN
J. J. HORNING
D. B. WORTMAN

DIRECT TECHNICAL INQUIRIES TO:
PROFESSOR W. M. MCKEEMAN
INFORMATION SCIENCES
UNIVERSITY OF CALIFORNIA
SANTA CRUZ, CALIFORNIA 95064

DESCRIPTION - THE XPL SYSTEM IS A COMPLETE COMPILER GENERATOR, DESIGNED TO FACILITATE THE PRODUCTION OF EFFICIENT SYNTAX-DIRECTED COMPILERS FOR THE S/360. THE SYSTEM CONSISTS OF A DIALECT OF PL/I CALLED XPL DESIGNED TO BE CONVENIENT FOR WRITING TRANSLATORS; A COMPILER (XCOM) FROM XPL INTO S/360 MACHINE LANGUAGE; A SMALL OS/360 ASSEMBLY LANGUAGE SUB-MONITOR WHICH PROVIDES THE INTERFACE BETWEEN XPL PROGRAMS AND OS/360; A PROGRAM (ANALYZER) WHICH BUILDS PARSING DECISION TABLES DIRECTLY FROM BNF GRAMMARS; AND A TABLE DRIVEN PARSING ALGORITHM EMBEDED IN A PROTOTYPE COMPILER (SKELETON); AND SEVERAL UTILITY PROGRAMS TO AID IN USING THE SYSTEM UNDER OS/360. THE XPL SYSTEM WAS DEVELOPED TO RUN UNDER OS/360 RELEASE 20 MFT II. IT WILL RUN UNDER ANY S/360 WITH THE UNIVERSAL INSTRUCTION SET, DIRECT ACCESS STORAGE (2311, 2314, OR 2321) AND AT LEAST 128K BYTES OF STORAGE (ALTHOUGH MORE STORAGE ENHANCES SYSTEM PERFORMANCE). THE SYSTEM AS DISTRIBUTED ASSUMES 2311 DISKS AND WILL RUN UNCHANGED ON 2314 DISKS. PROGRAMS AND INSTRUCTIONS ARE PROVIDED FOR ADAPTING THE SYSTEM TO WORK WITH OTHER 2311 DISKS. ALL MAJOR COMPONENTS OF THE SYSTEM EXCEPT A SMALL ASSEMBLY-LANGUAGE SUBMONITOR ARE WRITTEN AND COMPILED BY XCOM. THE SYSTEM MAY BE ADAPTED TO RUN UNDER OPERATING SYSTEMS OTHER THAN OS/360 BY WRITING A NEW VERSION OF THE SUBMONITOR. SINCE XCOM WAS WRITTEN IN XPL ITS PERFORMANCE (3500-6000 CARDS/MINUTE COMPILATION RATE UNDER HASP ON A 360/65) IS TYPICAL OF COMPILERS PRODUCED BY THE XPL SYSTEM. A BRIEF DESCRIPTION IS CONTAINED IN THE "THE XPL COMPILER GENERATOR SYSTEM" BY MCKEEMAN ET AL., PROCEEDINGS OF THE 1968 FALL JOINT COMPUTER CONFERENCE. FULL DOCUMENTATION IS GIVEN BY 'A COMPILER GENERATOR' BY MCKEEMAN, HORNING, AND WORTMAN (PRENTICE HALL, NOVEMBER 1970). THE SYSTEM WAS DEVELOPED AT STANFORD UNIVERSITY AND AT THE UNIVERSITY OF CALIFORNIA AT SANTA CRUZ. IT HAS BEEN IN USE AT STANFORD SINCE 1967 AND AT OTHER INSTALLATIONS SINCE NOVEMBER 1967.

360D-03.2.016

*1 (STAR-1) - LIST PROCESSING LANGUAGE

AUTHOR: RICHARD A. STONE

DIRECT TECHNICAL INQUIRIES TO:
D. S. HOUSEL
WESTERN ELECTRIC CO., INC.
P. O. BOX 900
PRINCETON, N. J. 08540

DESCRIPTION - *1 (CARNEGIE-MELLON DESCENDANT OF BELL LABORATORIES' L6) IS A HIGHLY SPEED AND SPACE EFFICIENT LIST PROCESSING LANGUAGE. IT IS LOW LEVEL AND EASILY LEARNED YET PROGRAMS ARE MACHINE AND DATA INDEPENDENT. LINKAGE IS PROVIDED TO OTHER PROGRAMMING LANGUAGES TO ALLOW WRITING OF EFFICIENT LIST PROCESSING SUBROUTINES. THE COMPILER IS WRITTEN IN SNOBOL4 AND WILL RUN ON ANY MACHINE WITH THAT LANGUAGE AVAILABLE. RUNNING UNDER SPITBOL (OBJECT MODULES PROVIDED ON TAPE), IT REQUIRES 125K UNDER OS/360. ASSEMBLY LANGUAGE MAY BE PRODUCED FOR THE IBM 360/370 AND THE DEC PDP-10 AND PDP-11. TAPE INCLUDES OBJECT MODULES, SOURCE, AND MACHINE READABLE TEXT.

PROGRAMMING LANGUAGE - SNOBOL 4

MINIMUM SYSTEM REQUIREMENTS - OS/360

DOCUMENTATION: 160 PAGES, $7.00 ADDITIONAL CHARGE.
CARD COUNT: 9,922 APPROXIMATE.
SUBMITTAL/REVISION DATE: 5/73
360D-03.2.017

PAPER SAVING MODIFICATIONS TO FORTRAN H AND G WITH NOSOURCE OPTION

AUTHOR: CHESTER M. SMITH, JR.

DIRECT TECHNICAL INQUIRIES TO:
CHESTER M. SMITH, JR.
214 COMPUTER BUILDING
THE PENNSYLVANIA STATE UNIVERSITY
UNIVERSITY PARK, PA 16802

DESCRIPTION: THE AMOUNT OF PAPER GENERATED BY THE FORTRAN G AND H COMPILERS UNDER THE NOSOURCE OPTION IS EXTREMELY WASTEFUL. IBM APPEARS UNWILLING TO DO ITS PART IN CONSERVING NATURAL RESOURCES AND MONEY BY MODIFYING THE COMPILERS. THE PENNSYLVANIA STATE UNIVERSITY COMPUTATION CENTER THEREFORE DECIDED TO SEE WHAT THE PROBLEM WOULD ENTAIL. THE MODIFICATIONS TO REDUCE PAPER WASTE WITH NOSOURCE REQUIRED NINE SOURCE CHANGES IN THE MODULE IEKFICOS, AND FIVE CHANGES TO IEYFORT.

PROGRAMMING LANGUAGE: OS ASSEMBLER.

MINIMUM SYSTEM REQUIREMENTS: OS/360/MVT (MODS TO REL 21.7)

DOCUMENTATION: 4 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 2,400 APPROXIMATE.

CONTINUED FROM PRIOR COLUMN


PROGRAMMING SYSTEMS: WRITTEN IN FORTRAN IV.

MINIMUM SYSTEM REQUIREMENTS: 128K CORE STORAGE, CARD READER, LINE PRINTER AND 1 TAPE DRIVE (OR AN EQUIVALENT DRUM OR DISC).

DOCUMENTATION: 22 PAGES, $.10 ADDITIONAL CHARGE.
CARD COUNT: 6,750 APPROXIMATE.
SUBMITTAL/REVISION DATE: 04/69.

360D-03.3.011

COMIT/360

AUTHOR: D. RITCHIE

DIRECT TECHNICAL INQUIRIES TO:
DEAN RITCHIE
COMPUTING CENTER
WASHINGTON STATE UNIVERSITY
PULLMAN, WASHINGTON 99163

DESCRIPTION: COMIT/360 IS A CONVERSION OF COMIT II DISTRIBUTED THROUGH THE INSTITUTE FOR COMPUTER RESEARCH, UNIVERSITY OF CHICAGO. IT PROVIDES THE STRING MANIPULATION AND LIST PROCESSING FACILITIES OF COMIT FOR USERS OF SYSTEM/360. FOR A COMPLETE DOCUMENTATION OF COMIT II, CONTACT THE INSTITUTE OF COMPUTER RESEARCH, UNIVERSITY OF CHICAGO.

PROGRAMMING SYSTEMS: WRITTEN IN ASSEMBLER LANGUAGE AND HAS BEEN COMPILED AND TESTED USING OS RELEASE 14 ON A

CONTINUED FROM PRIOR COLUMN
CONTINUED FROM PRIOR COLUMN

SYSTEM/360 MODEL 67.

MINIMUM SYSTEM REQUIREMENTS - REQUIRES A COMMERCIAL OR
UNIVERSAL INSTRUCTION SET (DECIMAL FEATURE) AND WILL REQUIRE
REASSEMBLING ON A SYSTEM/360 WITH LESS THAN 256K BYTES
OF STORAGE.

DOCUMENTATION: 7 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 17,070 APPROXIMATE.
SUBMITTAL/REVISION DATE: 06/69

360D-03.3.013
SHARE FORMAC/FORMAC73

AUTHOR: DR. KNUT A. BAHR

DIRECT TECHNICAL INQUIRIES TO:
H.D. NOBLE
214 COMPUTER BUILDING
THE PENNSYLVANIA STATE UNIVERSITY
UNIVERSITY PARK, PA 16802

DESCRIPTION - FORMAC (FORMULA MANIPULATION COMPILER)
IS A SYMBOLIC ALGEBRAIC MANIPULATION SYSTEM CAPABLE
OF TAKING GENERAL PARTIAL DERIVATIVES, PERFORMING
EXACT RATIONAL ARITHMETIC, AND IN GENERAL ENABLING
MANY TEDIOUS ALGEBRA AND CALCULUS PROBLEMS TO BE
COMPUTERIZED. SHARE FORMAC/FORMAC73 IS A MAINTENANCE
AND EXTENTION EFFORT AS PUBLISHED IN THE FEBRUARY 1974
ISSUE OF THE SIGSAM BULLETIN BY KNUT BAHR. THE SYSTEM
IS WRITTEN IN 360 ASSEMBLER LANGUAGE AND RUNS ON
360/370 HARDWARE UNDER OS OR VS/370. MEANINGFUL PROGRAMS
CAN BE RUN IN A 140 BYTE REGION.

PROGRAMMING LANGUAGE - ASSEMBLER, PL/I (F)

MINIMUM SYSTEM REQUIREMENTS - 360 MODEL 50, 140K BYTES
CORE, PL/I (F)

DOCUMENTATION: 80 PAGES, $3.00 ADDITIONAL CHARGE
FORMAC USER'S MANUAL - $9.50 (SEE NOTE)
NOT AVAILABLE ON CARDS.
SUBMITTAL/REVISION DATE: 7/75

NOTE: THE ABOVE DOCUMENTATION CHARGE DOES NOT INCLUDE
THE FORMAC USER'S MANUAL; THIS MANUAL IS
UNCHANGED FROM PREVIOUS VERSIONS OF SHARE-FORMAC.

CONTINUED FROM PRIOR COLUMN

HOWEVER, INSTALLATIONS THAT ARE ORDERING FORMAC FOR
THE FIRST TIME OR FOR SOME REASON NO LONGER HAVE A COPY,
WILL PROBABLY WISH TO ORDER THIS MANUAL. THE COST IS
$9.50 (THIS IS IN ADDITION TO THE DOCUMENTATION CHARGE
QUOTED PREVIOUSLY).

370D-03.3.014
APL/SV (OS/MVT VERSION) MODIFICATIONS

AUTHOR: JAMES O. KITCHEN

DIRECT TECHNICAL INQUIRIES TO:
JAMES O. KITCHEN
COMPUTATION CENTER
UNIVERSITY OF NORTH CAROLINA
CHAPEL HILL, NC 27514

DESCRIPTION - THIS PACKAGE CONSISTS OF MODIFICATIONS WHICH
WERE APPLIED TO VERSION 1, MOD LEVEL 1, OF APL/SV TO PERMIT
IT TO RUN UNDER MVT ON AN IBM 370/165 MACHINE LOCATED AT
TRIANGLE UNIVERSITIES COMPUTATION CENTER (TUCC). IN
ADDITION, THESE MODS PERMITTED APL/SV TO BE RUN ON THIS
MACHINE CONCURRENTLY WITH APL/360. WHILE THESE MODS SHOULD
ALLOW APL/SV TO BE RUN ON OTHER 370 MVT SYSTEMS, THEY ARE
NOT CONSIDERED SUFFICIENT TO PERMIT IT TO BE RUN ON A 360
MACHINE OR UNDER AN MFT SYSTEM.

NOTE: THIS PACKAGE DOES NOT INCLUDE APL/SV, WHICH MUST BE
LEASED FROM THE IEM CORPORATION.

PROGRAMMING LANGUAGE - OS ASSEMBLER.

MINIMUM SYSTEM REQUIREMENTS - S/370, MVT, APL/SV.

DOCUMENTATION: 6 PAGES, NO ADDITIONAL CHARGE.
NOT AVAILABLE ON CARDS.
SUBMITTAL/REVISION DATE: 3/75.
370D-03.3.015

APL/SV ASCII MODIFICATIONS

AUTHOR: JAMES O. KITCHEN

DIRECT TECHNICAL INQUIRIES TO:
JAMES O. KITCHEN
COMPUTATION CENTER
UNIVERSITY OF NORTH CAROLINA
CHAPEL HILL, NC 27514

DESCRIPTION - THIS PACKAGE CONSISTS OF MODIFICATIONS THAT WERE ADDED TO VERSION 1, MOD LEVEL 1, OF APL/SV IN ORDER TO PROVIDE DIAL-UP ASCII SUPPORT FOR THREE DIFFERENT ASCII APL KEYBOARDS INCLUDING THE ONE USED ON THE Tektronix 4013 TERMINAL. SEVERAL OTHER MINOR FEATURES ARE ALSO PROVIDED INCLUDING A MECHANISM THAT PERMITS AN INSTALLATION TO DEFINE AN EXECUTE FUNCTION THAT WILL EXECUTE MOST SYSTEM COMMANDS. WHILE THESE MODS WERE DEVELOPED FOR USE WITH A COPY OF APL/SV WHICH HAS BEEN PREVIOUSLY MODIFIED TO PERMIT IT TO RUN UNDER MVT (SEE 370D-03.3.014) ON AN IBM 370/165 MACHINE AT TRIANGLE UNIVERSITIES COMPUTATION CENTER (TUCC), THERE ARE NO FEATURES OF THESE ASCII MODS WHICH ARE KNOWN TO DEPEND UPON THE MVT MODS.

PROGRAMMING LANGUAGE - OS ASSEMBLER.

MINIMUM SYSTEM REQUIREMENTS - S/370, MVT, APL/SV.

DOCUMENTATION: 8 PAGES, NO ADDITIONAL CHARGE.

SUBMITTAL/REVISION DATE: 3/75.

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CONTINUED FROM PRIOR COLUMN

FOR THE OPTIMIZING COMPILER VERSION 2.3. IT IS SUITABLE FOR MOST INTERACTIVE PROGRAMS WHOSE MAIN FUNCTION IS EXTENSIVE CONVERSATION - SUCH AS TEACHING AND TUTORING PROGRAMS. SUPPLIED ARE A COMPILER AND EXECUTION ROUTINE. THE COMPILER REQUIRES ABOUT 200K BYTES TO EXECUTE; A TRIVIAL PROGRAM CAN BE RUN IN A MINIMUM SIZE (92K) TSO REGION.

PROGRAMMING LANGUAGE - PL/I-OPTIMIZER

MINIMUM SYSTEM REQUIREMENTS - TSO

DOCUMENTATION: 4 PAGES, NO ADDITIONAL CHARGE.

CARD COUNT: 3,200 APPROXIMATE.

SUBMITTAL/REVISION DATE: 03/76

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360D-03.4.027

FORTRAN RANDOM I/O SUBROUTINE

AUTHOR: H. P. SIEGLAFF

DIRECT TECHNICAL INQUIRIES TO:
H. P. SIEGLAFF
3610 W. NORTHVIEW
PHOENIX, ARIZONA 85021

DESCRIPTION - THIS SUBROUTINE PROVIDES A MEANS TO THE FORTRAN PROGRAMMER TO WRITE, READ, AND FIND LOGICAL RECORDS IN RANDOM ORDER ON/FROM ANY COMBINATION OF THE 99 FORTRAN I/O UNITS.

PROGRAMMING SYSTEMS - THIS SUBROUTINE WAS WRITTEN AND TESTED USING OS FORTRAN 4 G LEVEL, OS VERSION 13 ON A S/360 MODEL 50, AND A 2311 DISK PACK.

MINIMUM SYSTEM REQUIREMENTS - THE PACKAGE SHOULD WORK ON ANY S/360 MACHINE WHICH HAS FORTRAN IV G AND OS. (MAXIMUM CORE REQUIREMENTS IS 1K.)

DOCUMENTATION: 18 PAGES, NO ADDITIONAL CHARGE.

CARD COUNT: 200 APPROXIMATE.

SUBMITTAL/REVISION DATE: 12/68

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A 2250 MODEL 1 SIMULATION SUPPORT PACKAGE

AUTHOR: G.M. STABLER

DIRECT TECHNICAL INQUIRIES TO:
G.M. STABLER
BOX F
BROWN UNIVERSITY
PROVIDENCE, R.I. 02912

DESCRIPTION - THE 2250 MODEL 1 SIMULATION SUPPORT PACKAGE IS A SET OF 360 AND 1130 PROGRAMS WHICH ALLOW GRAPHICS PROGRAMS WRITTEN FOR THE 2250 MOD 1 OR MOD 3 GRAPHICS DISPLAY TERMINAL TO USE THE FACILITIES OF AN 1130/2250 MOD 4 TERMINAL WITH NO REPROGRAMMING. THE PACKAGE SUPPORTS ASSEMBLY LANGUAGE GRAPHICS (GPS) AS WELL AS HIGHER LEVEL LANGUAGES (GSP, GPAK), AND OPERATES AT THE ACCESS METHOD LEVEL.

PROGRAMMING SYSTEMS - WRITTEN IN ASSEMBLY LANGUAGE AND RUNS UNDER MVT AND (IN THE 1130) UNDER THE DISK MONITOR. THE 360 SYSTEM MUST INCLUDE GRAPHIC PROGRAMMING SERVICES. COMMUNICATIONS BETWEEN THE 360 AND THE 1130 SUBSYSTEM ARE CARRIED OUT OVER A HIGH SPEED (40.8K BAUD) POINT-TO-POINT LINE USING A HIGH SPEED BISYNCHRONOUS COMMUNICATIONS ACCESS METHOD (BSCAM) WHICH IS AVAILABLE FROM THE TYPE IV LIBRARY (PROGRAM NUMBERS 360D-06.3.012 AND 1130-06.3.005).

MINIMUM SYSTEM REQUIREMENTS - A 2250 MODEL 4 TERMINAL AND THOSE REQUIRED TO RUN 05/360 MVT.

DOCUMENTATION: 18 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 8,570 APPROXIMATE.
SUBMITAL/REVISION DATE: 10/69

A SYSTEM TO PROCESS ABSTRACT CATALOGS AND RELATED INDICES

AUTHOR: C. A. MERRITT

DIRECT TECHNICAL INQUIRIES TO:
JOHN C. MORETTI
IBM DPD HEADQUARTERS
1133 WESTCHESTER AVENUE
WHITE PLAINS, NEW YORK 10604

DESCRIPTION - A SYSTEM TO PROCESS ABSTRACT CATALOGS AND RELATED INDICES IS A PROGRAM WHICH IS A PART OF INFORMATION DISSEMINATION AND RETRIEVAL ACTIVITIES. THE SYSTEM WILL PRODUCE MASTER ABSTRACT CATALOGS AND INDICES COVERING ALL INFORMATION SOURCES PUBLICATIONS, PROGRAMS, AUDIO-VISUAL AIDS, SEMINARS, ETC.. THE SAME DATA FILES FROM WHICH THESE MASTER REFERENCES ARE PRODUCED WILL ALSO SERVE AS THE SOURCE OF INFORMATION FOR PREPARING SELECTIVE CATALOGS, INDICES AND BIBLIOGRAPHIES OF INTEREST TO USERS OF IBM SYSTEMS.

THE PURPOSE OF THIS DOCUMENT IS TO DESCRIBE THAT PART OF THE SYSTEM WHICH IS USED IN THE PREPARATION OF PROGRAM CATALOGS AND THEIR RELATED INDICES. THE PROGRAMS INVOLVED ARE DESIGNED TO ACCEPT INPUT TO DATA FILES, TO PROCESS CHANGE TRANSACTIONS AFFECTING DATA IN THE FILES, TO EXTRACT DATA FROM THE FILES ACCORDING TO SPECIFIED KEYS, AND TO PRINT FORMATTED INDICES AND ABSTRACT LISTINGS. FROM DATA STORED IN THE SYSTEM, THE CATALOG PROCESSOR WILL PRODUCE A CATALOG AND A VARIETY OF INDICES. IN DEVELOPING THE PROGRAM, EVERY EFFORT WAS MADE TO ALLOW AS MUCH FLEXIBILITY AS POSSIBLE IN ARRANGING DATA AND FORMATTING PRINT-OUTS. PROVISIONS ARE MADE TO SELECT PARTICULAR SETS OF RECORDS FROM THE TOTAL FILE, AND TO SEGMENT THE VARIOUS LISTINGS AND INDICES ACCORDING TO TYPES OF PROGRAM OR OTHER CONTROLS. FORMATS OF LISTINGS AS TO LINE LENGTH, SPACING, HEADINGS, ETC., CAN GENERALLY BE SPECIFIED BY THE USER THROUGH CONTROL CARDS ENTERED AT THE TIME OF EXECUTION OF A PARTICULAR PROGRAM. A GENERALIZED OVERVIEW OF THE SYSTEM SHOWS TWO BASIC OPERATING PHASES: THE FIRST UPDATES AND MAINTAINS THE FILE, THE SECOND IS THE TEXT WRITING PHASE.

EACH PHASE CONSISTS OF SEVERAL PROGRAMS WHICH MANIPULATE THE INFORMATION STORED IN THE INTEGRAL DATA BASE. THE WORD INTEGRAL IS USED TO EMPHASIZE THE FACT THAT IT IS A SINGLE DATA BASE, EVEN THOUGH IT IS SEGMENTED INTO FOUR MAJOR CATEGORIES AND MAY PHYSICALLY RESIDE IN ONE OR MORE VOLUMES OR DATA SETS. THE FOUR CATEGORIES ARE AS FOLLOWS (A)
Continued from prior column

Temporary Abstract Library (B) Permanent Abstract Library (C) Message Centers (D) Auxiliary Module Information Center (AMIC). Other sections of this text shall be devoted to a detailed discussion of the system flow and the data base.

Programming Systems - The Catalog Processor is programmed for the IBM System/360 and was tested and installed under Operating System Release 15/16. All programs are written in PL/I, Version IV.

Minimum System Requirements - Uses the Queued Index Sequential Access Method (QISAM) when accessing data on direct storage devices. The largest program requires a partition of 140K for execution.


360D-03.5.007

Report Writer

Author: R. Karpinski

Direct Technical Inquiries To: R. H. Karpinski
Information Systems, 76-U
University of California
San Francisco, CA 94143

Description - This package provides a report writer facility in PL/I, similar to that in COBOL. The package uses PL/I compile time facilities to translate the special constructions into GOTOS, CALLS, LABELS, and PROCEDURES. Normal use involves two % include statements referring to an on-line library containing the two sections of code, labeled REP1 and REP2.

Programming Systems - Written in PL/I.

Minimum System Requirements - Those required to run under OS/360.

Documentation: 8 pages, no additional charge. Card count: 750 approximate. Submittal/Revision date: 12/69

360D-03.5.008

Nscript - Produces text datasets in manuscript form

Author: William Dwyer, Yale University

Direct Technical Inquiries To: Roger A. Roach
Manager of Systems Programming
MIT, Room 39-564
77 Massachusetts Avenue
Cambridge, Mass. 02139

Description - The quality and accuracy of a document depends greatly on the ease with which revisions can be made to the document. This statement is particularly true of technical documentation (into which class the present manual falls), which should always accurately reflect the status of the things they describe.

It is natural, particularly at MIT, that computer software solutions to the problems of document production should be devised. Cess's "Runoff", Multics's "Runoff", and TSO's "Format" represent similar such solutions.

"Nscript" is an outgrowth of Script intended for use under CMS on a System/360 Model 67 running under CP/67. It's set of command words encompasses most of those belonging to Script, Multics's "Runoff", and TSO's "Format". In most cases they perform identical functions and have the same symbolic notation.

Nscript running under 360/05/TSO, which was developed by the MIT Programming Development Office, has the same outward appearance as it did when running under CMS. Except for the fact that OS I/O conventions make it somewhat more difficult to use, it still has all the capabilities that it had with CMS.

Several powerful features are available with Nscript that are not available with TSO's format:

1- The ability to enter footnotes at convenient places in the input. Footnotes are saved and printed at the bottoms of output pages.

2- The ability to use symbolic "reference names" to simplify numbering and cross-referencing.

3- The ability to define both heading and footing lines for
CONTINUED FROM PRIOR COLUMN

4- THE ABILITY TO SPECIFY FORMAT CONTROL INFORMATION OR TEXT DYNAMICALLY (DURING PRINTOUT).

5- THE ABILITY TO USE ROMAN NUMERALS (INSTEAD OF ARABIC) IN PAGE NUMBERS AND, IN CONJUNCTION WITH THE HEADING AND FOOTING CONTROLS, TO PLACE PAGE NUMBERS IN A VARIETY OF PLACES ON THE OUTPUT PAGE.

6- THE ABILITY TO SPECIFY TRANSLATION TABLE PAIRS.

7- THE ABILITY TO DEFINE "REMOTE SEQUENCES", WHICH ARE INVOKED AT SPECIFIED PLACES IN THE OUTPUT.

8- THE ABILITY TO CONTROL THE OUTPUT CONDITIONALLY.

NSCRIPT CONSISTS OF 2 MODULES, A COMMAND PROCESSOR (PROMPTER) FOR USE WITH TSO, AND A PROGRAM FOR PROCESSING NSCRIPT FILES WHICH CAN BE INVOKED EITHER BY THE TSO PROMPTER OR BY A BATCH JOB.

SINCE NSCRIPT CAN TREAT TAB CHARACTERS INTERNALLY, SEVERAL (OPTIONAL) MODIFICATIONS TO THE TSO EDITOR FOR TAB PROCESSING ARE INCLUDED. THE MODIFICATIONS INCLUDE THE ADDITION OF A SCRIPT FILE TYPE WHICH IS SIMILAR TO A TEXT FILE TYPE EXCEPT FOR LINE LENGTH AND TAB PROCESSING.

PROGRAMMING LANGUAGE - ASSEMBLER.

MINIMUM SYSTEM REQUIREMENTS - OS/360

DOCUMENTATION: 111 PAGES, $4.55 ADDITIONAL CHARGE.
CARD COUNT: 10,600 APPROXIMATE.
SUBMITAL/REVISION DATE: 1/74.

360D-03.5.009
PL/I REPORT WRITER MACROS
AUTHOR: D. KARPINSKI
MODIFIED BY SHARON EONNER

DIRECT TECHNICAL INQUIRIES TO:
SHARON EONNER
MARATHON OIL COMPANY
FINDLAY, OHIO 45840

DESCRIPTION - THIS IS A MODIFICATION OF SHARE PROGRAM 360D-03.5.007 FOR USE WITH THE PL/I OPTIMIZING COMPILER. SEE THE ABSTRACT FOR THE ABOVE PROGRAM FOR DETAILS.

PROGRAMMING LANGUAGE - IBM PL/I OPTIMIZING COMPILER

MINIMUM SYSTEM REQUIREMENTS - N/A

DOCUMENTATION: 24 PAGES, $.20 ADDITIONAL CHARGE.
CARD COUNT: 933 CARDS APPROXIMATE.
SUBMITAL/REVISION DATE: 4/76.

360D-03.6.001
FORTRAN CROSS REFERENCE
AUTHOR: R. H. KARPINSKI

DIRECT TECHNICAL INQUIRIES TO:
R. H. KARPINSKI
INFORMATION SYSTEMS, 76-U
UNIVERSITY OF CALIFORNIA
SAN FRANCISCO, CA 94143

DESCRIPTION - FORTXREF IS A STANDARD PL/I PROGRAM USING SYSIN FOR THE INPUT DATA AND SYSPRINT FOR THE OUTPUT. THE DATA CONSISTS OF ONE OR MORE FORTRAN PROGRAMS. EACH OCCURRENCE OF A FORTRAN END CARD WILL CAUSE THE CROSS-REFERENCING TABLE TO BE OUTPUT AND REINITIALIZED. THIS WILL ALSO HAPPEN ON END OF DATA IF THE LAST CARD IS NOT AN END CARD. EACH INPUT CARD WILL BE OUTPUT WITH A FORTRAN LINE NUMBER IF APPROPRIATE. THE CROSS-REFERENCE TABLE GIVES (IN 360 COLLATING SEQUENCE) EACH KEYWORD, VARIABLE NAME, STATEMENT NUMBER, AND CONSTANT WITH A LIST OF EACH USE BY LINE NUMBER. INACCURACIES- IF "FORMAT" IS USED
CONTINUED FROM PRIOR COLUMN

AS AN ARRAY NAME, THE REST OF THE STATEMENT MAY NOT BE CROSS REFERENCED. LIMITS- 2000 ITEMS MAY BE REFERENCED APPROXIMATELY 6000 TIMES.

PROGRAMMING SYSTEMS - WRITTEN IN PL/I.

MINIMUM SYSTEM REQUIREMENTS - S/360 MODEL 40.

DOCUMENTATION: 5 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 300 APPROXIMATE.
SUBMITTAL/REVISION DATE: 02/67

360D-03.6.007
COBOL SOURCE CROSS-REFERENCE LISTING

AUTHOR: D. E. OLDHAM

DIRECT TECHNICAL INQUIRIES TO:
BRUCE LEAKE
BELL HELICOPTER CO.
DEPARTMENT 17
P.O. BOX 482
FORT WORTH, TEXAS 76101

DESCRIPTION - THE OBJECTIVE OF THIS PROGRAM IS TO PRODUCE A CROSS-REFERENCE LISTING OF DATA-NAMES, PROCEDURE-NAMES, AND PARAGRAPH-NAMES FROM COBOL SOURCE STATEMENTS, USING THE STATEMENT SEQUENCE NUMBER AS THE REFERENCE NUMBER.

PROGRAMMING SYSTEMS - WRITTEN IN COBOL.

MINIMUM SYSTEM REQUIREMENTS - THE COBOL-P SORT VERB IS UTILIZED BY THE PROGRAM AND REQUIRES THREE (3) SORT WORK UNITS (TAPE OR DISK).

DOCUMENTATION: 18 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 1,150 APPROXIMATE.
SUBMITTAL/REVISION DATE: 01/68

360D-03.6.018
NEATER: A PL/I SOURCE STATEMENT REFORMATTER

AUTHORS: K. CONROW  R.G. SMITH

DIRECT TECHNICAL INQUIRIES TO:
KENNETH CONROW
COMPUTING CENTER
KANSAS STATE UNIVERSITY
MANHATTAN, KANSAS 66502

DESCRIPTION - THE PROGRAM (NEATER) ACCEPTS A SYNTACTICALLY CORRECT PL/I PROGRAM AND OPERATES ON IT TO PRODUCE A REFORMATTED VERSION. IT EITHER PRINTS OR PRINTS AND PUNCHES THE REFORMATTED PROGRAM IN A LOGICAL OR IN A COMPRESSED FORMAT. IT NEATENS THE STATEMENTS BY OMITTING NONESSENTIAL STRINGS OF BLANKS. LOGICAL STRUCTURE IS INDICATED BY INDENTATION; THE AMOUNT OF INDENTATION FOR EACH LOGICAL LEVEL IS CONTROLLED BY THE USER. STATEMENT NUMBERS ARE PRODUCED WHICH CORRESPOND TO THOSE PRODUCED BY THE COMPILER.

THE PROGRAM IS EXTREMELY USEFUL IN DEVELOPMENT OF COMPLICATED PL/I SOURCE PROGRAMS BECAUSE AN UNEXPECTED INDENTATION PATTERN WILL AT ONCE REVEAL LOGIC ERRORS. LOGICALLY FORMATTED VERSIONS OF COMPLICATED SOURCE PROGRAMS ARE FAR MORE VALUABLE IN DOCUMENTATION OF SUCH PROGRAMS THAN AN UNFORMATTED SOURCE LISTING.

PROGRAMMING SYSTEMS - NEATER IS WRITTEN IN PL/I, IT OPERATES SUCCESSFULLY ON ITSELF, THE SUBMITTED DECK IS IN COMPRESSED FORMAT, THE SUBMITTED LISTING IS IN LOGICAL FORMAT WITH THE DEFAULT INDENTATION OF 3 AND SERVES AS AN EXAMPLE OF NEATER'S OUTPUT. NEATER HAS BEEN COMPILED AND TESTED USING OS VERSION 17 ON A S360 MODEL 50.

MINIMUM SYSTEM REQUIREMENTS - 360 USING FULL PL/I. CARD READER, PRINTER, A 2311 DISK CULD BE USED WITH "HASP" IF DESIRED.

DOCUMENTATION: 16 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 200 APPROXIMATE.
SUBMITTAL/REVISION DATE: 06/69
SIMPLE: A SIMPLE PRECEDENCE TRANSLATOR WRITING SYSTEM

AUTHOR: JAMES E. GEORGE

DIRECT TECHNICAL INQUIRIES TO:
DR. JAMES E. GEORGE
LOS ALAMOS SCIENTIFIC LABORATORY
P.O. BOX 1663, MS 272
LOS ALAMOS, NEW MEXICO 87545

DESCRIPTION - SIMPLE IS A TRANSLATOR WRITING SYSTEM COMPOSED OF A SIMPLE PRECEDENCE SYNTAX ANALYZER AND A SEMANTIC CONSTRUCTOR AND IS IMPLEMENTED IN PL/I. IT PROVIDES AN ERROR DIAGNOSTIC AND RECOVERY MECHANISM FOR ANY SYSTEM IMPLEMENTED USING SIMPLE. THE REMOVAL OF PRECEDENCE CONFLICTS IS DISCUSSED IN DETAIL WITH SEVERAL EXAMPLES.

THE UTILIZATION OF SIMPLE IS ILLUSTRATED BY DEFINING A COMMAND LANGUAGE META SYSTEM FOR THE CONSTRUCTION OF SCANNERS FOR A WIDE VARIETY OF COMMAND ORIENTED LANGUAGES. THIS META SYSTEM IS ILLUSTRATED BY DEFINING COMMANDS FROM SEVERAL TEXT EDITORS.

PROGRAMMING LANGUAGE - PL/I (F LEVEL)

MINIMUM SYSTEM REQUIREMENTS - OS/360 + FORTRAN IV

DOCUMENTATION: 99 PAGES, $3.95 ADDITIONAL CHARGE.
CARD COUNT: 1,900 APPROXIMATE.
SUBMITTAL/REVISION DATE: 5/73

MORTRAN, A FORTRAN LANGUAGE EXTENSION

AUTHOR: A. JAMES COOK

DIRECT TECHNICAL INQUIRIES TO:
A. JAMES COOK
SLAC COMPUTATION GROUP
P.O. BOX 4349
STANFORD, CA 94305

DESCRIPTION - MORTRAN IS A FORTRAN LANGUAGE EXTENSION. ITS FEATURES INCLUDE (1) FREE-FIELD FORMAT, (2) ALPHANUMERIC STATEMENT LABELS, (3) COMMENTS ALLOWED ANYWHERE IN THE TEXT,

(4) MULTIPLE ASSIGNMENT STATEMENTS, (5) SIMPLE BLOCK STRUCTURE, (6) IMPLIED LOOPING CONTROL STATEMENTS, (7) FOR-BY-TO, WHILE, UNTIL, IF-THEN-ELSE, UNLESS-ELSE STATEMENTS, (8) ABBREVIATIONS FOR SOME COMMON FORTRAN CONSTRUCTIONS, AND (10) USER-DEFINED MACRO-INSTRUCTIONS.

THE FORTRAN PROCESSOR IS WRITTEN IN STANDARD FORTRAN IV SO THAT IT CAN BE IMPLEMENTED ON ANY COMPUTER THAT HAS A STANDARD FORTRAN COMPILER.

PROGRAMMING LANGUAGE - FORTRAN IV

MINIMUM SYSTEM REQUIREMENTS - OS/360 + FORTRAN IV

DOCUMENTATION: 3 PAGES, NO ADDITIONAL CHARGE.
(PLUS MACHINE READABLE DOCUMENTATION)
CARD COUNT: NOT AVAILABLE ON CARDS.
SUBMITTAL/REVISION DATE: 8/73.

DECTALB, A DECISION TABLE TRANSLATOR BASED ON LIST PROCESSING TECHNIQUES

AUTHOR: KENNETH CONROW (WITH RONALD G. SMITH)

DIRECT TECHNICAL INQUIRIES TO:
KENNETH CONROW
COMPUTING CENTER
KANSAS STATE UNIVERSITY
MANHATTAN, KANSAS 66502

DESCRIPTION - DECTALB, A DECISION TABLE ALGORITHM BASED ON LIST PROCESSING TECHNIQUES, IS A TRANSLATOR WHICH CONVERTS PROGRAMS OR PROGRAM SEGMENTS WRITTEN IN DECISION TABLES INTO COMPILABLE PL/I CODING. THE USE OF A DIRECTORY VECTOR TO CONTROL EXECUTION ENABLES COMPLETE ELIMINATION OF DUPLICATE CODING OF STUBS, COMPLETE FREEDOM OF REUSE OF STUBS THROUGHOUT A DECTALB BLOCK, AND AUTOMATIC REARRANGEMENT OF CONDITION STUBS TO REDUCE THE OVERHEAD OF RULE SELECTION. THE EXECUTION TIME CONTROL SECTION IS SO SIMPLE THAT IT ADDS VERY LITTLE OVERHEAD AT EXECUTION TIME. THE VERSION SUBMITTED IS THE BOOTSTRAP WHICH WAS EMPLOYED TO IMPLEMENT A MORE COMPLETE SYSTEM. THE BOOTSTRAP IMPLEMENTS THE BASIC FEATURES MENTIONED ABOVE BUT DOES NOT INCORPORATE ELABORATIONS LIKE PROCESSING EXTENDED ENTRY DECISION TABLES, PROVISION OF DIAGNOSTICS, AND ACCEPTANCE OF CONTROL OPTIONS.
CONTINUED FROM PRIOR COLUMN

PROGRAMMING LANGUAGE - PL/I (F)
MINIMUM SYSTEM REQUIREMENTS - OS/360 (TESTED UNDER MFT)

DOCUMENTATION: 75 PAGES, $2.75 ADDITIONAL CHARGE.
CARD COUNT: 1,220 APPROXIMATE.
SUBMITTAL REVISION DATE: 2/74.

360D-03.6.023
COBOL MODULE AND GO TO CHECKER

AUTHOR: HAROLD P. SIEGLAFF

DIRECT TECHNICAL INQUIRIES TO:
HAROLD P. SIEGLAFF
3610 WEST NORTHVIEW
PHOENIX, ARIZONA 85021

DESCRIPTION - THIS COBOL PROGRAM CHECKS A COBOL PROGRAM FOR
MODULARITY AND UPWARD GO TO STATEMENTS. A MODULAR PROGRAM
CONSISTS OF 1-N MODULES IN THIS FORM: BEGIN-X ••• END-X.
EXIT. OR STOP RUN. TO EXECUTE CODE OUTSIDE OF A MODULE USE
PERFORM ... THRU ... OR CALL SUBR. AMONG 9 DETECTED ERRORS
ARE ALTER, GO TO ••• DEPENDING ON, PERFORM WITHOUT THRU,
AND GO TO A PARAGRAPH OUTSIDE A MODULE. UPWARD GO TO STATEMENTS
ARE PRINTED WITH A WARNING. THIS COBOL PROGRAM IS MODULAR
AND MAY BE USED AS INPUT FOR A SAME RUN. THIS PROGRAM
MAY BE RUN ON ANY COMPUTER WITH A COBOL COMPILER, CARD
READER, AND PRINTER. ADDITIONAL DOCUMENTATION AND JCL
NEEDED TO RUN THE PROGRAM ARE INCLUDED WITH THE PROGRAM AS
COMMENTS.

THIS PROGRAM IS THE FIRST PROGRAM OF A TRILOGY.
IDEA 59 COBOL MODULE AND GO TO CHECKER
IDEA 60 COBOL MODULE INDEXER AND LOOP CHECKER
IDEA 61 COBOL MODULE SEGMENTER

CONTINUED FROM PRIOR COLUMN

A MODULAR PROGRAM CAN DECREASE DEBUGGING, SIMPLIFY
MAINTENANCE, AND FORCE PROGRAMS TO BE WRITTEN IN FUNCTIONAL
MODULES, (E.G. READ/WRITE A RECORD, CREATE/UPDATE A MESSAGE,
SEARCH/SORT A TABLE, ETC.)

PROGRAMMING LANGUAGE - COBOL

MINIMUM SYSTEM REQUIREMENTS - COBOL COMPILER.
MAP/II MACRO PRE-PROCESSOR

AUTHOR: NORM CASSELMAN

DIRECT TECHNICAL INQUIRIES TO:
NORM CASSELMAN
DEPARTMENT 522
THE MAGNAVOX COMPANY
4624 EXECUTIVE BLVD.
FORT WAYNE, INDIANA 46808

DESCRIPTION - MAP/II IS A MACRO-DRIVEN PRE-PROCESSOR USED TO PROCESS INPUT DATA SETS CONSISTING OF 80 BYTE LOGICAL RECORDS UNDER CONTROL OF USER-SUPPLIED MACRO ROUTINES. THESE MACRO ROUTINES MAY BE PROVIDED WITH THE SOURCE INPUT OR STORED IN A STANDARD OS PDS IN SOURCE FORM. ALTHOUGH MAP/II MAY BE USED IN A NUMBER OF DIFFERENT APPLICATIONS, IT IS SPECIFICALLY DESIGNED TO PRE-PROCESS FORTRAN SOURCE PROGRAMS. THE MACRO ROUTINES THEMSELVES ARE WRITTEN IN A MODIFIED FORTRAN LANGUAGE AND ARE INTERPRETIVELY EXECUTED BY MAP/II. ALL MACRO ROUTINES HAVE DECISION-MAKING INSTRUCTIONS AND BRANCHING CAPABILITY.

MAP/II ONLY RECOGNIZES MACRO COMMANDS FROM THE SOURCE INPUT - ALL OTHER RECORDS ARE IGNORED AND DIRECTLY PASSED TO AN OUTPUT DATA SET. WHEN MACRO COMMANDS ARE DETECTED, CONTROL IS TRANSFERRED TO THE APPROPRIATE MACRO ROUTINE WHICH GENERATES THE DESIRED EXPANDED RECORDS.

PROGRAMMING LANGUAGE - OS ASSEMBLER (F)

MINIMUM SYSTEM REQUIREMENTS - OS/360

DOCUMENTATION: 7 PAGES, NO ADDITIONAL CHARGE.
(PLUS MACHINE READABLE DOCUMENTATION)
CARD COUNT: 9000 APPROXIMATE.
SUBMITTAL/REVISION DATE: 5/75

MORTRAN2, A PORTABLE MACRO-BASED STRUCTURED FORTRAN EXTENSION

AUTHOR: A.J. COOK AND L.J. SHUSTEK

DIRECT TECHNICAL INQUIRIES TO:
A.J. COOK OR L.J. SHUSTEK
SLAC COMPUTATION RESEARCH GROUP 88
P.O. BOX 4349
STANFORD, CA 94305

DESCRIPTION - MORTRAN2 IS A FORTRAN LANGUAGE EXTENSION THAT PERMITS A RELATIVELY EASY TRANSITION FROM FORTRAN TO A MORE CONVENIENT AND STRUCTURED LANGUAGE. THE LANGUAGE IS IMPLEMENTED BY A MACRO-BASED PRE-PROCESSOR AND IS FURTHER EXTENSIBLE BY USER-DEFINED MACROS. ITS FEATURES INCLUDE (1) FREE-FIELD FORMAT, (2) ALPHANUMERIC STATEMENT LABELS, (3) FLEXIBLE COMMENT CONVENTION, (4) NESTED BLOCK STRUCTURE, (5) FOR-BY-TO-DO, WHILE, UNTIL, LOOP, IF-THEN-ELSEIF-ELSE, EXIT AND NEXT STATEMENTS, (6) MULTIPLE ASSIGNMENT STATEMENTS, (7) CONDITIONAL COMPILATION, AND (8) AUTOMATIC LISTING INDENTATION.

THE MORTRAN2 PRE-PROCESSOR IS WRITTEN IN ANSI STANDARD FORTRAN, AND THE OUTPUT IS ALSO FORTRAN SO THAT TRANSPORTABILITY OF BOTH THE PRE-PROCESSOR AND ITS GENERATED PROGRAMS IS ASSURED. MORTRAN2 IS AN EXTENSION OF THE PROCESSOR (AND LANGUAGE) CALLED MCRTRAN.

PROGRAMMING LANGUAGE - FORTRAN IV

MINIMUM SYSTEM REQUIREMENTS - ANSI STANDARD FORTRAN IV SYSTEM

DOCUMENTATION: 37 PAGES, $0.85 ADDITIONAL CHARGE.
CARD COUNT: 6,000 APPROXIMATE.
SUBMITTAL/REVISION DATE: 7/75.
TIME SHARING LANGUAGE/ONE (TL/1)

AUTHORS: ALFRED S. BAKER
JOHN A. CHAPMAN

DIRECT TECHNICAL INQUIRIES TO:
MR. JOHN A. CHAPMAN
STANDARD OIL CO. (INDIANA)
200 EAST RANDOLPH DRIVE
CHICAGO, ILLINOIS 60601

DESCRIPTION - TIME SHARING LANGUAGE/ONE is a TSO command language processor language based around PL/1. It can be used for highly specialized interactive applications. When used as a CLIST replacement - it provides the user with all of the logical power available to the PL/1 programmer. TIME SHARING LANGUAGE/ONE is distributed as PL/1 preprocessor macros, PL/1 subprograms, assembly language subprograms, and sample commands.

PROGRAMMING LANGUAGE - ASSEMBLER & PL/1 (OPTIMIZE/F)

MINIMUM SYSTEM REQUIREMENTS - OS RELEASE 21

DOCUMENTATION: 98 PAGES, $3.90 ADDITIONAL CHARGE.
CARD COUNT: 46,000 APPROXIMATE.
SUBMITAL/REVISION DATE: 02/76

PL/I STRING FUNCTIONS

AUTHOR: P. LACOUTURE

DIRECT TECHNICAL INQUIRIES TO:
TECHNICAL ASSISTANCE CURRENTLY NOT AVAILABLE.

DESCRIPTION - PL/I allows the programmer to manipulate character string data with a great deal of flexibility. The operator, II, and the built in functions index, substr, and length provide a means for scanning, preparing, and parsing text. While these functions are sufficient to perform almost any character string manipulations the programmer desires, they must often be called repeatedly to achieve the desired effect. The string functions described in the enclosed write up are derived from a set of operators for PL/I proposed by Dr. Robert F. Rosin. ("STRINGS IN PL/I", SIGPLAN NOTICES 'PL/I BULLETIN NO. 4' VOLUME 2 NO. 8, AUG., 1967.) THEY ARE DESIGNED TO COMPLEMENT THE FACILITIES ALREADY AVAILABLE IN PL/I (F).

THEY MAY BE DIVIDED INTO THREE GROUPS FOR PURPOSES OF DISCUSSION:

1. BEFORE, UPTO, FROM, AFTEE, IN, DELETE, DELETS, REPLACE, REPLS, REVERSE, AND SCOUNT--ALL OF THESE RETURN STRINGS OR VALUES AND ALL EXCEPT DELETE, REPLACE, AND REPLS SET A SUCCESS VARIABLE WHICH MAY BE TESTED (SEE BELOW).

2. FAIL AND SUC--FUNCTIONS THAT ARE THE RESULT OF THE PREVIOUS STRING FUNCTION AND RETURN '0' (FAILURE IN
CONTINUED FROM PRIOR COLUMN


3. SETSUC--FUNCTION THAT IS USED TO SET THE SUCCESS VARIABLE TO EITHER VALUE.

PROGRAMMING SYSTEMS - THE FUNCTIONS THEMSELVES ARE WRITTEN IN PL/I (F) AND HAVE BEEN COMPILED AND TESTED USING PL/I (F) VERSION 4 ON AN OS/MFT BASED SYSTEM ON AN S/360 MODEL 50.

MINIMUM SYSTEM REQUIREMENTS - 360/30 64K.

DOCUMENTATION: 13 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 300 APPROXIMATE.
SUBMITTAL/REVISION DATE: 02/69

CONTINUED FROM PRIOR COLUMN

OF LINKEDITING THE USER'S FINAL LOAD MODULE.

FACILITIES ARE PROVIDED FOR THE RETURN OF FORTRAN FUNCTION AND LIBRARY FUNCTION EVALUATIONS AND FOR THE HANDLING OF SOME FORTRAN EXECUTION-TIME ERRORS. THE MOST IMPORTANT RESTRICTION IMPOSED IS THE PROHIBITION OF FORTRAN INPUT-OUTPUT; AS COBOL PROVIDES EXCELLENT INPUT-OUTPUT FACILITIES, THIS RESTRICTION IS NOT SERIOUS AND IT ALLOWS THE INTERFACE TO REMAIN SMALL (LESS THAN 1K FOR MOST APPLICATIONS). COBORT WILL RUN UNDER ANY VERSION OF OS SINCE RELEASE 18.

PROGRAMMING LANGUAGE - OS MACRO ASSEMBLER.

MINIMUM SYSTEM REQUIREMENTS - CS/360

DOCUMENTATION: 22 PAGES, $.10 ADDITIONAL CHARGE.
CARD COUNT: 500 APPROXIMATE.
SUBMITTAL/REVISION DATE: 08/74.

CONTINUED FROM PRIOR COLUMN

360D-03.8.016

COBORT - AN INTERFACE ENABLING STANDARD CALLS TO FORTRAN PROGRAMS, SUBPROGRAMS, AND LIBRARY SUBPROGRAMS FROM OTHER LANGUAGES.

AUTHOR: ROGER CHETWYND

DIRECT TECHNICAL INQUIRIES TO:
ROGER CHETWYND
COMPUTER SCIENCE DEPARTMENT
UNIVERSITY OF MONTANA
MISSOULA, MONTANA 59801

DESCRIPTION - COBORT IS AN INTERFACE SYSTEM FOR OS/360 USERS THAT ENABLES STANDARDIZATION OF CALLS TO FORTRAN PROGRAMS, SUBPROGRAMS, AND MOST LIBRARY SUBPROGRAMS, THUS MAKING THE POWERFUL NUMERICAL CAPABILITY OF FORTRAN AVAILABLE TO PROGRAMS WRITTEN IN OTHER LANGUAGES. THE INTERFACE IS DESIGNED PARTICULARLY FOR USE WITH OS AND COBOL PROGRAMS AND THE DOCUMENTATION REFLECTS THIS BIAS BUT ITS COMPATIBILITY WITH OTHER LANGUAGES SHOULD BE WIDESPREAD.

THE DISTRIBUTED PACKAGE CONSISTS OF TWO ASSEMBLY LANGUAGE MACRO-INSTRUCTIONS WITH DOCUMENTATION AND MAY BE IMPLEMENTED SIMPLY BY ASSEMBLING THE MACROS TO A LIBRARY WITH NO FURTHER SYSTEM CHANGE. THE USER TAILORS AN INTERFACE TO HIS NEEDS BY ASSEMBLING THESE MACROS WITH PROPER PARAMETERS. THE INTERFACE IS SUBSTITUTED FOR CERTAIN MODULES IN THE FORTRAN LIBRARY, WHICH SUBSTITUTION MAY BE DONE AS LATE AS THE TIME

360D-04.0.006

CLOCK

AUTHOR: W. S. PAGE

DIRECT TECHNICAL INQUIRIES TO:
H. R. HAMILTON
NORTH CAROLINA STATE UNIVERSITY
P. O. BOX 5445
RALEIGH; N. C. 27607

DESCRIPTION - A SUBROUTINE TO DELIVER READINGS OF THE S/360 REAL TIME CLOCK TO PROGRAMS CALLING WITH A S/360 FORTRAN IV COMPATIBLE LINKAGE. TIME ELAPSED SINCE LAST CALL OF SUBROUTINE CAN ALSO BE COMPUTED BY THE SUBROUTINE. MANY SEPARATE "CLOCKS" CAN BE KEPT RUNNING WITHIN THE CALLING PROGRAM.

PROGRAMMING SYSTEMS - REQUIRES S/360 OS.

MINIMUM SYSTEM REQUIREMENTS - THOSE REQUIRED FOR OS/360.

DOCUMENTATION: 9 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 100 APPROXIMATE.
SUBMITTAL/REVISION DATE: 06/68
SIMPLIFIED INPUT - OUTPUT AND DEBUGGING MACROS FOR ASSEMBLER LANGUAGE USERS

AUTHOR: JOHN R. EHLMAN

DIRECT TECHNICAL INQUIRIES TO:
DR. JOHN R. EHLMAN
STANFORD CENTER FOR INFORMATION PROCESSING
SLAC - BIN 97
POST OFFICE BOX 4349
STANFORD, CALIFORNIA 94305

DESCRIPTION - THIS SET OF FIVE MACRO-INSTRUCTIONS AND FOUR ASSOCIATED LIBRARY ROUTINES PROVIDE THE ASSEMBLER LANGUAGE PROGRAMMER WITH AN EXTREMELY SIMPLE AND USEFUL SET OF INPUT-OUTPUT AND DIAGNOSTIC TOOLS.

(1) THE PRINTOUT MACRO PRINTS THE CONTENTS OF MEMORY AREAS IN A FORMAT DETERMINED BY THE TYPE OF DATA IT CONTAINS.
(2) THE PRINTLIN MACRO PRINTS SINGLE LINE IMAGES.
(3) THE READCARD MACRO READS INPUT DATA CARDS.
(4) THE PROLOGUE AND EPILOGUE MACROS SET UP AN ERROR-HANDLING LINKAGE THAT ALLOWS A PROGRAM TO CONTINUE AFTER PROGRAM INTERRUPTIONS, AND PROVIDE PSW, REGISTER, AND CORE DUMPS. THE INTERFACE ROUTINES CALLED BY THE MACROS USE THE FORTRAN I/O LIBRARY TO DO THE ACTUAL INPUT AND OUTPUT, AND DATA FORMATTING.

PROGRAMMING SYSTEMS - WRITTEN IN ASSEMBLER LANGUAGE F, OPERATES UNDER OS/360.

MINIMUM SYSTEM REQUIREMENTS - SAME AS THOSE REQUIRED FOR OS/360.

DOCUMENTATION: 18 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 1,200 APPROXIMATE.
SUBMITTAL/REVISION DATE: 09/69

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MACROS FOR SIMPLIFIED I/O AND DIAGNOSTIC PRINTOUTS

AUTHORS: JOHN R. EHLMAN JAMES E. LOWE PAUL M. DANTZIG

DIRECT TECHNICAL INQUIRIES TO:
DR. JOHN R. EHLMAN
STANFORD CENTER FOR INFORMATION PROCESSING
SLAC - BIN 97
P. O. BOX 4349
STANFORD, CALIFORNIA 94305

DESCRIPTION - THESE MACROS PROVIDE A VERY SIMPLE MEANS FOR THE BEGINNING ASSEMBLER LANGUAGE PROGRAMMER TO (1) READ CARD IMAGES INTO HIS PROGRAM, AND DETECT ENDFILE CONDITIONS;
(2) WRITE PRINTER LINE IMAGES OF VARYING OR DEFAULT LENGTHS;
(3) PRINT A FORMATTED AND NAMED LINE GIVING THE CONTENTS OF A SYMBOLICALLY DESCRIBED AREA OF MEMORY;
(4) PRINT THE CONTENTS OF THE GENERAL PURPOSE AND FLOATING POINT REGISTERS;
(5) GIVE A FORMATTED HEXADECIMAL DUMP OF SPECIFIED AREAS OF MEMORY;
(6) CLOSE THE INPUT AND OUTPUT FILES AND RETURN CONTROL TO THE SUPERVISOR.

THE MACROS ARE VERY EASY TO USE, ALLOW A FLEXIBLE MEANS OF SPECIFYING OPERANDS, AND HAVE NO ADVERSE OR UNTOWARDS EFFECTS ON THE USER'S PROGRAM.

DOCUMENTATION: 9 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 950 APPROXIMATE.
SUBMITTAL/REVISION DATE: 09/72

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FORTRAN H SYMBOLIC DEBUGGING PACKAGE

AUTHOR: JOHN STEFFANI

DIRECT TECHNICAL INQUIRIES TO:
JOHN STEFFANI
COMPUTATION GROUP - BIN 88
SLAC
2575 SANDHILL ROAD
MENLO PARK, CALIFORNIA 94025

DESCRIPTION - THE FORTRAN H SYMBOLIC DEBUGGING PACKAGE ALLOWS THE USER TO VIEW HIS FORTRAN H PROGRAM'S VARIABLES
AND THEIR CONTENTS UPON DEMAND (VIA SUBROUTINE CALL) OR
UPON PROGRAM TERMINATION, EITHER NORMAL OR ABNORMAL. THE
PACKAGE CONSISTS OF A MODIFIED FORTRAN H COMPILER, A
MODIFIED LINKAGE EDITOR AND AN EXECUTION TIME SUPERVISOR.

THE CURRENT DISTRIBUTION INCLUDES OBJECT CODE ONLY. THE
DOCUMENTATION INCLUDES AN INSTALLATION GUIDE, A USER’s GUIDE
AND AN APPENDIX WHICH CONTAINS THE ORIGINAL WORK ON THIS
PROGRAM. IN ORDER TO IMPROVE THE PROGRAM, THE AUTHOR WOULD
WELCOME COMMENTS AND/OR SUGGESTIONS FROM USER INSTALLATIONS.

PROGRAMMING LANGUAGE / SYSTEM - FORTRAN H, 88K LINKAGE
EDITOR.

MINIMUM SYSTEM REQUIREMENTS - OS/360 MVT, 100 TRACKS OF
2314 DISK STORAGE OR EQUIVALENT.

DOCUMENTATION: 44 PAGES, $1.20 ADDITIONAL CHARGE.
CARD COUNT: 800 APPROXIMATE.
SUBMITTAL/REVISION DATE: 11/72

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PL/I EXECUTION ANALYZER (PLEA)

AUTHOR: I. M. CUTHILL

DIRECT TECHNICAL INQUIRIES TO:
I. M. CUTHILL
GENERAL RESOURCES, COATS 14P,
STATISTICS CANADA
TUNNEY'S PASTURE
OTTAWA, ONTARIO, CANADA K1A 0T6

DESCRIPTION - PLEA, THE PL/I EXECUTION ANALYZER, IS DESIGNED
to give a PL/I PROGRAMMER A STATISTICAL ANALYSIS OF WHERE
CPU TIME IS BEING SPENT IN HIS PROGRAM, PLUS A LISTING OF
ALL LOAD MODULES USED DURING EXECUTION.

PLEA CONSISTS OF 2 COMPONENTS, A MONITOR AND TABULATOR. THE
MONITOR LOADS THE PL/I PROGRAM TO BE ANALYZED AND THEN
SAMPLES EXECUTION AT REGULAR INTERVALS UNTIL THE PROGRAM
TERMINATES. DURING EACH SAMPLE, THE MONITOR DETERMINES
WHICH STATEMENT WAS BEING EXECUTED IF THE COMPILER STATEMENT
OPTION WAS ACTIVE, OTHERWISE THE SAMPLE IS TRACED TO THE
PL/I BLOCK. MONITOR DATA IS RECORDED ON A SEQUENTIAL
DATASET, AND THIS DATA IS AGGREGATED AND TABULATED BY THE
TABULATOR STEW WHICH FOLLOWS EXECUTION OF THE SAMPLED

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PLEA FOR BOTH OPTIMIZER AND PL/I-F ARE SUPPLIED, BUT ONLY
THE OPTIMIZER VERSION WILL BE SUPPORTED BY THE AUTHOR. BOTH
SYSTEMS WILL RUN ON MVT OR VS2, BUT NOT MFT. THE MONITOR
IS AN ASSEMBLER PROGRAM REQUIRING 4K, THE TABULATOR IS A
PL/I PROGRAM REQUIRING 100K. DOCUMENTATION INCLUDES
INSTALLATION INSTRUCTIONS, USERS GUIDE AND JCL.

DOCUMENTATION: 5 PAGES, NO ADDITIONAL CHARGE.
(PLUS MACHINE READABLE DOCUMENTATION)
CARD COUNT: 2,660 APPROXIMATE.

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DUMBELL OR DEBUGGER

AUTHOR: JOHN M. FITZ

DIRECT TECHNICAL INQUIRIES TO:
JOHN M. FITZ
1043 SIERRA AVENUE
BERKELEY, CA 94707

DESCRIPTION - THIS PROGRAM EXECUTES BCWN LINK-EDITED
LOAD MODULES INTERPRETIVELY WITH OPTIONS TO PRINT OUT
TRACE INFORMATION CONSISTING OF INSTRUCTION IMAGES,
REGISTER CONTENTS, AND CORE CONTENTS TO AIDS IN DEBUGGING.
IT IS WRITTEN IN IBM 360 ASSEMBLY LANGUAGE (BAL). THIS
IS VERSION 1. THE FIELD OF APPLICATION IS IN TESTING AND
DEBUGGING PROGRAMS ESPECIALLY WHEN NORMAL METHODS
FAIL. SINCE ITS METHOD OF EXECUTION IS TO EXECUTE MODELS
INTERPRETIVELY, IT IS ACTUALLY A SIMULATOR OF THE IBM
360. IT IS A MAIN PROGRAM WHICH LOADS AND EXECUTES A
SPECIFIED LOAD MODULE; IT FULLY CONTROLS THE PARTITION
IN WHICH IT IS LOADED. THIS VERSION RUNS ON AN IBM 360
UNDER OS/MFT REQUIRING ONLY A PRINTER PLUS ALL DEVICES
REQUIRED BY SUBJECT PROGRAMS BEING TESTED.

PROGRAMMING LANGUAGE - 360 ASSEMBLY LANGUAGE

MINIMUM SYSTEM REQUIREMENTS - IBM 360 OS/MFT 132K

DOCUMENTATION: 13 PAGES
CARD COUNT: 2250 APPROXIMATE.
CONTINUED FROM PRIOR COLUMN

SUBMITTAL/REVISION DATE: 9/75

360D-04.4.012
TSO ANALYSIS - SYSTEM MEASUREMENT - TIME-SHARING PERFORMANCE
- SIMULATION

AUTHORS: B. J. DIMARSDICO
W. V. DIETRICH
J. F. MARANZANO

DIRECT TECHNICAL INQUIRIES TO:

TECHNICAL ASSISTANCE
NOT CURRENTLY AVAILABLE.

DESCRIPTION - THE TSO ANALYSIS PACKAGE IS A SET OF PROGRAMS
THAT ALLOWS AN INSTALLATION TO MEASURE THE PERFORMANCE OF
THE TIME SHARING OPTION (TSO) OF THE IBM-360-OS/MVT. THE
PACKAGE IS COMPOSED OF:

1. A TERMINAL SIMULATOR THAT READS TSO COMMANDS FROM
A DATA SET AND DRIVES TCAM IN A CONTROLLED MANNER.
2. COMMAND MEASUREMENT ANALYSIS ROUTINE THAT PRODUCES
COMMAND USAGE STATISTICS.
3. TIME HISTORY PLOTTING ROUTINE THAT SHOWS HOW ONE USER
INTERACTS WITH AND AFFECTS OTHERS.
4. STATE TRANSITION ANALYSIS ROUTINE THAT DIVIDES TIME
SHARING TRANSACTIONS INTO STATES OF INTEREST AND
ACCUMULATES TIME AND COUNTS FOR THOSE STATES.
5. REPORT GENERATOR TO PRODUCE HISTOGRAMS OF THE EVENTS
OF INTEREST.

THE PROGRAMS ARE WRITTEN IN PL/I, FORTRAN IV, AND OS
ASSEMBLER LANGUAGE.

PROGRAMMING SYSTEM - PROGRAM LANGUAGE - OS/360-MVT; PL/I,
FORTRAN IV AND OS ASSEMBLER LANGUAGE.

MINIMUM SYSTEM REQUIREMENTS - IBM-360/370

DOCUMENTATION: 154 PAGES, $6.70 ADDITIONAL CHARGE.
CARD COUNT: 5,120 APPROXIMATE.
SUBMITTAL/REVISION DATE: 09/73

370D-05.0.004
HASP V4.0 RETROFIT TO MFT-II

AUTHOR: JIM ALLEN

DIRECT TECHNICAL INQUIRIES TO:
JIM ALLEN
COMPUTATION CENTER
DUKE UNIVERSITY
DURHAM, NC 27706

DESCRIPTION - THIS MODIFICATION RETROPTS HASP V4.0 TO
MFT-II. ITS PURPOSE IS TO MAKE V4.0 A SUBSYSTEM WHICH RUNS
UNDER MFT-II JUST AS V3.1 DOES. THE MODIFICATION IS
APPLICABLE TO R21.7 MFT, BUT THERE IS SOME CODE WHICH WILL
AID IN THE CONVERSION TO EITHER MVT OR V51. THE
MODIFICATION HAS BEEN SUBMITTED FOR DISTRIBUTION SINCE THE
AUTHOR CONSIDERS IT A GOOD BASE FOR THE GENERAL RETROFIT
PROBLEM.

PROGRAMMING LANGUAGE - ADVANCED FUNCTION ASSEMBLER

MINIMUM SYSTEM REQUIREMENTS - MFT-II

DOCUMENTATION: 3 PAGES, NO ADDITIONAL CHARGE.
PLUS MACHINE READABLE DOCUMENTATION)
CARD COUNT: 1400 APPROXIMATE.
SUBMITTAL/REVISION DATE: 9/73.

360D-05.1.018
BAYLOR EXECUTIVE SYSTEM FOR TELEPROCESSING (BEST)

AUTHORS: W. HOBB, J. MCBRIDE, T. BROWN,
T. KENDRICK AND A. BEALE

DIRECT TECHNICAL INQUIRIES TO:
ALAN BEALE
INSTITUTE OF COMPUTER SCIENCE
BAYLOR COLLEGE OF MEDICINE
HOUSTON, TEXAS 77025

DESCRIPTION - BEST IS A TELEPROCESSING SYSTEM
WHICH SUPPORTS INTERACTIVE EXECUTION OF MULTIPLE
JOBS FROM TERMINALS WHILE THE USUAL BATCH JOB STREAMS
ARE OPERATIONAL. HIGH-LEVEL LANGUAGE INTERFACES ARE
INCLUDED WITH THE SYSTEM SO THAT INTERACTIVE PROGRAMS
CONTINUED FROM PRIOR COLUMN

MAY BE WRITTEN IN PI/I (F OR X), COBOL, OR FORTRAN, AS WELL AS ASSEMBLER LANGUAGE. ALL JOBS IN THE SYSTEM ARE STORAGE-PROTECTED AND CAN BE TIME-SLICED.

BEST RUNS ON ANY SYSTEM 360/370 RUNNING OS/MFT OR OS/MVT WITH AT LEAST 256K. IT SUPPORTS THE FOLLOWING TERMINAL TYPES: 1050, 2740, 2741, 2260 (LOCAL OR REMOTE), 3277 (LOCAL), 3284 OR 3286 (LOCAL), AND TELETYPE MOD 33/35.

PROGRAMMING LANGUAGE - ASSEMBLER (F)

MINIMUM SYSTEM REQUIREMENTS - SEE DESCRIPTION

DOCUMENTATION: 4 PAGES, NO ADDITIONAL CHARGE. (PLUS MACHINE READABLE DOCUMENTATION) NOT AVAILABLE ON CARDS.

SUBMITTAL/REVISION DATE: 5/75

360D-05.1.021
REMOTE HASP TO HASP

AUTHOR: JAMES F. WALKER

DIRECT TECHNICAL INQUIRIES TO:
JAMES F WALKER
TRIANGLE UNIVERSITIES COMPUTATION CENTER
P. O. BOX 12076
RESEARCH TRIANGLE PARK, N. C. 27709

DESCRIPTION - THE HASP TO HASP CODE IS A MODIFICATION TO THE IBM HASP VERSION 3.0 AND 3.1 CODE TO ALLOW TWO OR MORE HASP SYSTEMS TO TRANSMIT JOBS TO EACH OTHER VIA TELEPROCESSING. INPUT JOBS, OUTPUT JOBS, AND OPERATOR COMMANDS MAY BE TRANSMITTED OVER ALL LINE TYPES SUPPORTED BY HASP MULTILEAVING. ASSEMBLER SOURCE IS PROVIDED, ALONG WITH NECESSARY UPDATE CARDS TO INSERT IN A STANDARD HASPGEN DECK. OS HASP MUST BE INSTALLED IN EACH COMMUNICATING SYSTEM. THE MODIFICATIONS ADD APPROXIMATELY 2K TO AN UNMODIFIED SYSTEM.

SPECIFICATIONS OF THE SYSTEM ARE:

1- MINIMUM HASP MODIFICATIONS, 2- TOTALLY SYMMETRICAL, 3- NO SPECIAL HARDWARE, 4- INPUT AND OUTPUT SPOOLING AT EACH HASP SYSTEM 5- FULL AUTOMATIC OPERATION, 6- TRANSMISSION OF JOB CONTROL DATA, 7- FULL MULTILEAVING DATA TRANSMISSION, 8- FULL REMOTE CONSOLE FACILITY, 9- STANDARD HASP DATA FORMATS OF INPUT QUEUE, OUTPUT QUEUE, AND MULTILEAVING TRANSMISSION BLOCKS, 10- UNLIMITED NETWORK SIZE (CURRENT DISTRIBUTION CONTAINS SOME RESTRICTIONS).

PROGRAMMING SYSTEMS - OS/360 ASSEMBLER

MINIMUM SYSTEM REQUIREMENTS - OS/360, HASP, STANDARD IBM COMMUNICATIONS CONTROLLERS ON EACH SYSTEM.

DOCUMENTATION: 20 PAGES, NO ADDITIONAL CHARGE. (PLUS MACHINE READABLE DOCUMENTATION) NOT AVAILABLE ON CARDS.

SUBMITTAL/REVISION DATE: 02/73

370D-05.1.022
VS1 HASP

AUTHOR: JIM ALLEN

DIRECT TECHNICAL INQUIRIES TO:
JIM ALLEN
COMPUTATION CENTER
DUKE UNIVERSITY
DURHAM, N.C. 27706

DESCRIPTION - VS1 HASP IS A MODIFICATION TO HASP II V4.0 WHICH PROVIDES THE BASIC CAPABILITY TO RUN HASP ON A VS1 RELEASE 4.0 HOST SYSTEM. THE GOAL OF THE MODIFICATION IS TO PROVIDE A VS1-HASP INTERFACE WHICH IS EQUIVALENT TO THE FORMAL INTERFACE BETWEEN VS2 RELEASE 1 AND HASP V4.0. THE VS1-HASP INTERFACE IS IMPLEMENTED BY USING SVC TABLE INTERCEPTS AND SMF EXISTS SO THAT THE INTERFACE IS INDEPENDENT OF THE VS1 HOST AS MUCH AS POSSIBLE. THE TWO MAJOR FEATURES OF THE INTERFACE ARE AN INTERFACE BETWEEN HASP CONSOLE SERVICES AND VS1 MULTIPLE CONSOLE SUPPORT (MCS), AND THE INTERFACE BETWEEN HASP PSEUDO DEVICE I/O SERVICES AND THE VS1 INPUT/OUTPUT SUPERVISOR. THE BULK OF THE MODIFICATIONS ARE ISOLATED INTO HASPINTF, A NEW ASSEMBLY.

THIS MODIFICATION INCLUDES FIXES TO ALL KNOWN BUGS, THE INTEGRATION OF PTF 0709762, AND SUPPORT FOR MULTIPLE CONCURRENT READER/INTERPRETERS.

PROGRAMMING LANGUAGE - OS/VS ASSEMBLER

MINIMUM SYSTEM REQUIREMENTS - CAPABILITY TO RUN VS1
CONTINUED FROM PRIOR COLUMN

RELEASE 4.0

DOCUMENTATION: 15 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: NOT AVAILABLE ON CARDS.
SUBMITTAL/REVISION DATE: 6/76

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360D-05.1.023
TEXAS INTERACTIVE PROGRAMMING SYSTEM (TIPS)

AUTHORS: TOM WORSHAM AND GARY COHEN

DIRECT INQUIRIES TO:
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UNIVERSITY OF TEXAS REGIONAL COMPUTER CENTER
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DALLAS, TEXAS 75235

DESCRIPTION - TIPS, THE TEXAS INTERACTIVE PROGRAMMING SYSTEM, IS BOTH AN ON-LINE APPLICATION MONITOR AND A GENERALIZED UTILITY SYSTEM. TIPS IS CURRENTLY BEING RUN ON AN IBM 370/155 UNDER OS/MVT. NO MODIFICATIONS ARE REQUIRED FOR ITS INSTALLATION.

ON-LINE APPLICATION SYSTEM

THE ON-LINE APPLICATION SYSTEM CAN RUN AS A MILTEN SUBSYSTEM OR USING BTAM FOR TERMINAL I/O. THE BTAM VERSION, WHICH IS NO LONGER RUN AT UTECC, SUPPORTS ONLY A SINGLE TERMINAL TYPE (DISTRIBUTED FOR 2741 CORRESPONDENCE). TIPS PROVIDES EASY USER INTERFACES THROUGH THE CALL FACILITY FOR: TERMINAL I/O, IN-CORE WORK AREA ACCESS, DISK WORK AREA ACCESS, ENQ/DEQ ROUTINES, AND DISK DATA SET OPEN ROUTINES. AN APPLICATIONS PROGRAMMER GUIDE IS PROVIDED. TIPS USES MULTI-TASKING TO ALLOW FOR CONCURRENT PROGRAM EXECUTION. APPLICATIONS MAY USE ALL STANDARD OS ACCESS METHODS. AN INTERFACE IS PROVIDED TO ALLOW TIPS TRANSACTIONS TO BE ENTERED FROM THE OPERATOR'S CONSOLE. THE REGION REQUIREMENT FOR TIPS IS 14K PLUS 1K PER USER, PLUS A DYNAMIC AREA FOR LOADING AND EXECUTING USER PROGRAMS.

TIPS UTILITY SYSTEM

A POWERFUL BATCH UTILITY PROGRAM IS PROVIDED WITH COMPREHENSIVE DOCUMENTATION. IT HAS BEEN SUCCESSFULLY RUN ON A MVT AND MFT SYSTEM. IT OFFERS THE FOLLOWING

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CONTINUED FROM PRIOR COLUMN

ADVANTAGES OVER STANDARD OS UTILITIES:
(1) CONCISE AND FLEXIBLE CONTROL LANGUAGE
(2) NO USER JCL IS REQUIRED
(3) IDEALLY SUITED TO A BATCHER OR EXPRESS ENVIRONMENT
(4) CONSOLIDATES THE MOST FREQUENTLY USED FUNCTIONS INTO A SINGLE PROGRAM
(5) PROVIDES CAPABILITIES NOT AVAILABLE IN STANDARD IBM-OS UTILITIES
(6) BUILT-IN DATA SET SECURITY
(7) PROVIDES INTERACTIVE EXECUTION IN A MILTEN OR ETAM ENVIRONMENT

AVAILABLE FUNCTIONS

A
ALLOCATE A DATA SET
AL
ADD AN ALIAS FOR A MEMBER OF A PDS
BLDG
BUILD A GENERATION INDEX
C
CATALOG A DATA SET
CALC
DECIMAL / HEXDECIMAL CALCULATOR
CONN
CONNECT CONTROL VOLUMES
DCONN
DISCONNECT CONTROL VOLUMES
DLTX
DELETE A CATALOG INDEX
DSCB
DISPLAY OR MODIFY A DSCB
DUMP
DISPLAY MEMORY
FIND
FIND A DATA SET
I
DISPLAY THE ATTRIBUTES OF A DATA SET
L
LOCATE A DATA SET VIA THE CATALOG
LISTLIB
LIST A PARTITIONED DATA SET
LN
LIST THE DIRECTORY OF A PDS
PRINT
PRINT A DATA SET
PUNCH
PUNCH A DATA SET
PURGE
PURGE A PDS
R
RENAME A DATA SET
RM
RENAME A MEMBER OF A PDS
RPT
CALCULATE REQUIRED DISK STORAGE
S
SCRATCH A DATA SET
SN
SCRATCH A MEMBER OF A PDS
SPACE
DISPLAY AVAILABLE DISK STORAGE
U
UNCATALOG A DATA SET
ZAP
INVOKE IMASPZAP

PROGRAMMING LANGUAGE - ALC

MINIMUM SYSTEM REQUIREMENTS - SEE ABSTRACT.

DOCUMENTATION: 11 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: NOT AVAILABLE ON CARDS.
SUBMITTAL/REVISION DATE: 04/76
360D-05.014
NETUCC 1.1, TSO ENHANCEMENT PACKAGE

AUTHOR: OLE REITZEL JENSEN

DIRECT TECHNICAL INQUIRIES TO:
ORE REITZEL JENSEN
TECHNICAL UNIVERSITY OF DENMARK
BLDG. 305
L800 LYNGBY
DENMARK

DESCRIPTION - NETUCC IS A TSO ENHANCEMENT PACKAGE DEVELOPED TO SPEED UP LOGON/LOGOFF AND DYNAMIC ALLOCATION. THE PACKAGE REDUCES THE AMOUNT OF I/O REQUESTS RELATED TO SEVERAL SUPERVISOR FUNCTIONS, INVOLVED DATA SETS BEING LINKLIB, BROADCAST, JOBOQUE, CATALOGS. VTOC'S AND VTOC USAGE IS OPTIMIZED THROUGH THE USE OF CATALOG TDCB-TTR INFORMATION (NORMALLY ONLY USED FROM BATCH).

THE PACKAGE IS MADE UP OF FIVE INDEPENDENT MODS, EACH AimED AGAINST SPECIAL SYSTEM DATA SETS. INSTALLATION OF ALL (OR SOME) OF THE MODS CAN BE DONE VERY EASILY THROUGH THE USE OF A SPECIAL INSTALLATION TEST ROUTINE (INCLUDED IN THIS PACKAGE). ONLY CHANGES TO PARMLIE ARE NECESSARY TO GET THIS CODE TO RUN. ASSEMBLER IS USED FOR ALL PARTS OF THE PACKAGE, SOME SYSTEM EXPERIENCE IS RECOMMENDED FOR INSTALLATIONS ORDERING NETUCC.


PROGRAMMING LANGUAGE - ASSEMBLER

MINIMUM SYSTEM REQUIREMENTS - OS-MVT WITH TSO

DOCUMENTATION: 16 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: NOT AVAILABLE ON CARDS.
SUBMITTAL/REVISION DATE: 12/75

360D-05.1.024
ASP TO HASP LINK

AUTHORS: KAREN ETHEINGTON
CHRIS RECHLY
KENDALL WHITE

DIRECT TECHNICAL INQUIRIES TO:
GEORGE COVERT
B-7 COMPUTER SCIENCE BLDG.
IOWA STATE UNIVERSITY
AMES, IOWA 50010

DESCRIPTION - THIS IS A MODIFICATION TO ASP 3.1 WITH PTF 5 APPLIED TO SUPPORT JOB SUBMITAL BETWEEN ASP AND HASP SYSTEMS OR BETWEEN TWO ASP SYSTEMS. WITH THIS MODIFICATION TO ASP AND THE REMOTE HASP TO HASP MODIFICATION (SHARE PROGRAM LIBRARY 360D-05.1.021) TO HASP3, JOBS CAN BE SUBMITTED AT ONE COMPUTER SITE AND EXECUTED AT ANOTHER COMPUTER SITE USING TELEPROCESSING. SPECIAL FORMS FOR PRINT DATA SETS ARE SUPPORTED BETWEEN SITES USING THE CONTROL CARDS RECOGNIZED BY THE EXECUTING COMPUTER'S SYSTEM, BUT THE DATA SET ROUTING OF ASP IS NOT SUPPORTED.

THE DISTRIBUTION CONSISTS OF SOURCE UPDATES TO MODIFY MACROS AND SOURCE MODULES OF ASP, DOCUMENTATION OF INSTALLATION PROCEDURES AND A UTILITY PROGRAM FROM THE UNIVERSITY OF IOWA FOR TRANSMITTING DATA SETS BETWEEN TWO COMPUTER SITES USING TELEPROCESSING.

PROGRAMMING LANGUAGE - OS/360 ASSEMBLER

MINIMUM SYSTEM REQUIREMENTS - ASP RELEASE 3.1 PTF 5, HASP 3.0

DOCUMENTATION: 6 PAGES, NO ADDITIONAL CHARGE.
(PLUS MACHINE READABLE DOCUMENTATION)
CARD COUNT: 4,700 APPROXIMATE.
SUBMITTAL/REVISION DATE: 6/76

360D-05.2.014
NETUCC 1.1, TSO ENHANCEMENT PACKAGE
CONTINUED FROM PRIOR COLUMN

ALTHOUGH DDSS IS SPECIFICALLY DESIGNED FOR A MULTIPLE-CPU, SHARED DASD ENVIRONMENT, SOME OF THE PHILOSOPHIES AND FEATURES INCORPORATED INTO DDSS MAY HAVE UTILITY IN A NON SHARED DASD ENVIRONMENT. SOME OF THESE FEATURES ARE:
- DATA SET USE RESTRICTED TO THE DURATION OPEN/CLOSE RATHER THAN JOB DURATION.
- THREE LEVELS OF DATA SET 'ENQUE'; SHARED, EXCLUSIVE AND WRITE/EXCLUSIVE.
- EXTENSIVE OPERATOR/USER COMMUNICATION.

PROGRAMMING LANGUAGE - OS ASSEMBLER

MINIMUM SYSTEM REQUIREMENTS - MFT/MVS/SVS

DOCUMENTATION: 3 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: NOT AVAILABLE ON CARDS.
SUBMITTAL/REVISION DATE: 10/76

360D-05.5.002
SLAC MODIFICATIONS TO OS/VS LOADER

AUTHOR: JOHN R. EHRMAN

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STANFORD LINEAR ACCELERATOR CENTER
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STANFORD, CA 94305

DESCRIPTION - THESE MODIFICATIONS TO THE OS/VS LOADER PROVIDE TWO MAJOR CONVENIENCE FEATURES FOR THE USER:
(1) ALL NAMES CALLED FROM SYSLIB DATA SETS (VIA AUTOCALL) ARE FLAGGED IN THE LOAD MAP, AND ARE LISTED IN THE CONCATENATION NUMBER DICTIONARY WITH THE DATA SET NAME AND VOLUME ID FROM WHICH THEY WERE LOADED;
(2) UNRESOLVED EXTERNAL REFERENCES (ER) ARE CAUGHT, AND A DIAGNOSTIC MESSAGE IS PRINTED, IF A BRANCH TO A NON-EXISTENT ROUTINE IS ATTEMPTED.

IN ADDITION, THE DATA DERIVED FROM (1) ABOVE IS WRITTEN TO THE SMF DATA SET, USING A SPECIAL SVC ROUTINE. THIS DATA CAN BE USED TO MONITOR PROGRAM USAGE, LOAD LIBRARY ACCESS PATTERNS, DISTRIBUTE COSTS OF USER LIBRARIES, ETC.

USER AND SYSTEMS DOCUMENTATION IS INCLUDED ON THE DISTRIBUTION TAPE.
CONTINUED FROM PRIOR COLUMN

PROGRAMMING LANGUAGE/SYSTEMS - OS/VS, OS/MVT

MINIMUM SYSTEM REQUIREMENTS - OS/MVT/MFT, OS/VS

DOCUMENTATION: 3 PAGES, NO ADDITIONAL CHARGE.
(PLUS MACHINE READABLE DOCUMENTATION)
CARD COUNT: 11,000 APPROXIMATE.
SUBMITTAL/REVISION DATE: 7/76

360D-06.0.007
FORMAT - A TEXT-PROCESSING PROGRAM

AUTHOR: GERALD M. BERNS, JOHN R. EHRMAN

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STANFORD CENTER FOR INFORMATION PROCESSING
SLAC - BIN 97
POST OFFICE BOX 4349
STANFORD, CALIFORNIA 94305

DESCRIPTION - FORMAT IS A PROGRAM FOR S/360 AND S/370
DESIGNED TO MEET THE NEED FOR A RAPID METHOD OF EDITING AND
PRODUCING PAPERS, REPORTS, AND OTHER FINISHED AND
REPRODUCIBLE DOCUMENTS DIRECTLY ON THE SYSTEM PRINTER, USING
UPPER/Lower CASE AND SPECIAL CHARACTERS. IT HAS
FACILITIES WHICH SIMPLIFY THE TASK OF INDEX CONSTRUCTION.
INPUT TO THE PROGRAM IS FREE-FORM CARD-IMAGE TEXT. THE
DOCUMENT IS FORMATTED AND CONTROLLED ACCORDING TO CONTROL
CARDS AND COMMAND WORDS INTERSPERSED THROUGHOUT THE INPUT.
FORMAT IS A SINGLE PROGRAM REQUIRING NO AUXILIARY PROGRAMS
FOR ITS OPERATION. FORMAT PRODUCES ITS NORMAL OUTPUT FOR
THE TN PRINT TRAIN, AND HAS FACILITIES TO PRINT ALL OF THE
120 POSSIBLE CHARACTERS. NOTE THAT NO SUBSCRIPTS ARE
PROVIDED BY THE TN PRINT TRAIN, NOR, THEREFORE, BY FORMAT.

PROGRAMMING SYSTEMS - FORMAT IS WRITTEN ENTIRELY IN FULL
FORTRAN IV AND REQUIRES THE FULL FORTRAN LIBRARY.

MINIMUM SYSTEM REQUIREMENTS - FORMAT REQUIRES A MINIMUM
MEMORY SIZE OF 64K IN A STANDARD OS/360. NO ADDITIONAL
DEVICES ARE REQUIRED BEYOND THOSE NECESSARY TO OPERATE
S/360. HOWEVER, THE AVAILABILITY OF MAGNETIC TAPE DRIVES
TO THE PROGRAM GREATLY ENHANCE ITS USEFULNESS. NORMAL
OUTPUT MODE IS UPPER AND LOWER CASE. MEANS ARE PROVIDED TO
ALLOW THE USER TO SPECIFY UPPER CASE ONLY AND SPECIAL

CONTINUED FROM PRIOR COLUMN

CHARACTERS.

DOCUMENTATION: 76 PAGES, $2.80 ADDITIONAL CHARGE.
CARD COUNT: 6,140 APPROXIMATE.
SUBMITTAL/REVISION DATE: 06/72

360D-06.0.008
PRINT - A TEXT FORMATTING PROGRAM

AUTHOR: JAMES E. GEORGE

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LOS ALAMOS SCIENTIFIC LABORATORY
P.O. BOX 1663, MS 272
LOS ALAMOS, NEW MEXICO 87545

DESCRIPTION - PRINT IS A TEXT FORMATTING PROGRAM WRITTEN IN
PL/I TO PRODUCE DOCUMENTS USING THE PRINTER. THE INPUT TO
PRINT CONTAINS THE TEXT TO BE PRINTED INTERSPERSED WITH THE
NECESSARY CONTROL INFORMATION TO GENERATE THE DESIRED FORMAT
OF THE TEXT. THE FEATURES SUPPORTED BY PRINT ARE:
AUTOMATIC OR MANUAL PAGING
PAGE NUMBERING WITH OR WITHOUT TITLING
PARAGRAPHING WITH OR WITHOUT INDENTATION (LEFT OR RIGHT), NUMBERING AND/OR TITLING
UNDERLINING
TABLES WITH OR WITHOUT NUMERATING
PRINT DIRECT IMAGE (I.E. PRINT TEXT AS IS)
RIGHT JUSTIFICATION OF TEXT
TABS

ALSO, THE MARGIN, LINE LENGTH AND SPACING BETWEEN LINES ARE
VARIABLE. THE AIM WAS TO PROVIDE A MODULAR SYSTEM WHICH
WOULD BE EASY TO CHANGE AND WOULD ALLOW THE VALUE OF ANY
CONTROL VARIABLE TO BE CHANGED BY INPUT CONTROL.

PROGRAMMING LANGUAGE - PL/I (F)

MINIMUM SYSTEM REQUIREMENTS - OS/360

DOCUMENTATION: 32 PAGES, $1.60 ADDITIONAL CHARGE.
CARD COUNT: 1,150 APPROXIMATE.
SUBMITTAL/REVISION DATE: 4/73
COMPARE DATA SET UTILITY

AUTHOR: DAVID GOMBERG

DIRECT TECHNICAL INQUIRIES TO:
DAVID GOMBERG
U76
UNIVERSITY OF CALIFORNIA AT SAN FRANCISCO
SAN FRANCISCO, CA 94143

DESCRIPTION - COMPARE IS A PL1 MAIN PROGRAM DESIGNED TO COMPARE TWO DATA SETS, REPORTING ON AND RECOVERING FROM COMMON DISCREPANCIES. IT IS USEFUL FOR TESTING OUTPUT FROM A NEW VERSION OF A PROGRAM AGAINST AN OLDER VERSION OF A PROGRAM WHERE DISCREPANCIES (SUCH AS ADDITIONAL RECORDS IN THE NEW VERSION) ARE EXPECTED. BY USING AN OPTION WHICH ALLOWS THE PROGRAM TO IGNORE LEADING OR TRAILING COLUMNS, SOURCE DECKS WHICH HAVE BEEN RESEQUENCED CAN BE COMPARED FOR CHANGES IN CODE.

COMPARE REQUIRES ABOUT 100K MAIN MEMORY PLUS STORAGE FOR BUFFERS AND STACKS OF UNMATCHED RECORDS. IT USES AN ASSEMBLER LANGUAGE SUBROUTINE TO ATTEMPT TO PREDICT INSUFFICIENT MAIN MEMORY AND TERMINATE NEATLY.

PROGRAMMING LANGUAGE - PL/1 OPTIMIZING COMPILER.

MINIMUM SYSTEM REQUIREMENTS - 360/370 OS, 100K MEMORY.

DOCUMENTATION: 3 PAGES, NO ADDITIONAL CHARGE.

CARD COUNT: APPROXIMATELY 533

SUBMITTAL/REVISION DATE: 12/74

SIMPLIFIED INTERFACE FOR INVOKING SORT FROM PL/I OPTIMIZER PROGRAMS (A#SORT)

AUTHOR: FRITZ SCHNEIDER

DIRECT TECHNICAL INQUIRIES TO:
FRITZ SCHNEIDER
AMDAHL CORPORATION
1250 EAST ARQUES AVENUE
SUNNYVALE, CALIF. 94086

DESCRIPTION - THIS SUBROUTINE ALLOWS PL/I OPTIMIZER PROGRAMS TO DYNAMICALLY INVOKE OS SORT/MERGE AND PASS RECORDS TO BE SORTED USING WRITE AND READ STATEMENTS RATHER THAN THE CUMBERSOME PL/I'SRTD METHOD SUPPLIED WITH THE SYSTEM.

TO USE IT, THE PROGRAMMER CALLS A#SORT PASSING A DUMMY FILE NAME AND THE PARAMETERS NECESSARY TO DESCRIBE TO SORT. THEN A WRITE STATEMENT CAN BE USED TO TRANSMIT EACH RECORD TO BE SORTED INTO SORT. WHEN ALL RECORDS HAVE BEEN PASSED, A READ STATEMENT WILL RETRIEVE THE SORTED RECORDS. ENDFILE WILL BE USED TO INDICATE THAT NO MORE SORTED RECORDS ARE AVAILABLE. ERROR CONDITIONS ARE SIGNALED VIA ON CONDITIONS.

PROGRAMMING LANGUAGE - ASSEMBLER

MINIMUM SYSTEM REQUIREMENTS - CS OR OS/VS, PL/I OPTIMIZER, MULTITASKING

DOCUMENTATION: 3 PAGES, NO ADDITIONAL CHARGE.

CARD COUNT: 533 APPROXIMATELY

SUBMITTAL/REVISION DATE: 6/76
A HIGH SPEED BISYNCHRONOUS COMMUNICATIONS ACCESS METHOD

AUTHOR: G.M. STABLER

DIRECT TECHNICAL INQUIRIES TO:
G.M. STABLER
FOB F
BROWN UNIVERSITY
PROVIDENCE, R.I. 02912

DESCRIPTION - THE BISYNCHRONOUS COMMUNICATIONS ACCESS METHOD IS A SET OF 360 PROGRAMS WHICH SUPPORT QUEUED TELECOMMUNICATIONS OVER A HIGH SPEED (40.8K BAUD) POINT-TO-POINT HALF DUPLEX LINE CONNECTING A 360 AND AN 1130 OR ANOTHER 360.

THE SYSTEM, WHICH EMPLOYS EXCP FOR ALL I/O AND HANDLES ALL MESSAGE BLOCKING, LINE PROTOCOL, AND ERROR CHECKING INTERNALLY, IS CALLED AT THE GET/PUT LEVEL FROM ASSEMBLY LANGUAGE PROGRAMS. THE SYSTEM WILL SUPPORT ANY NUMBER OF LOGICAL USERS (MESSAGE DESTINATIONS) IN EITHER MACHINE, AND CAN SUPPORT ANY NUMBER OF REMOTE TERMINALS. SINCE ALL USER MESSAGES ARE TRANSMITTED IN "TRANSPARENT TEXT" MODE, THERE ARE NO RESTRICTIONS ON THE TYPE OF DATA A USER MAY SEND. LINE PROTOCOL CONFORMS TO CONVERSATIONAL BISYNCHRONOUS COMMUNICATIONS STANDARDS.

PROGRAMMING SYSTEMS - SUPPORT ANALOGOUS TO THIS PACKAGE IS PROVIDED FOR AN 1130 SYSTEM BY THE TYPE 4 PROGRAM ENTITLED "AN 1130 HIGH SPEED BISYNCHRONOUS COMMUNICATIONS SYSTEM", WRITTEN IN ASSEMBLER LANGUAGE; OPERATES UNDER OS/360 MVT.

MINIMUM SYSTEM REQUIREMENTS - SAME AS THOSE REQUIRED FOR OS/360 MVT.

DOCUMENTATION: 14 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 2,400 APPROXIMATE.
SUBMITTAL/REVISION DATE: 09/69

ENHANCED HASP RTP1130 WORKSTATION FOR DISK I/O

AUTHOR: WILLIAM F. DECKER

DIRECT TECHNICAL INQUIRIES TO:
WILLIAM F. DECKER
COMPUTER CENTER - LCM
UNIVERSITY OF IOWA
IOWA CITY, IOWA 52240

DESCRIPTION - ALLOWS CURRENT USERS OF THE HASP 1130 WORKSTATION (RTP1130) TO ADD DISK INPUT AND OUTPUT ACCESS. WHILE ONLINE TO HASP, DMS-II DISK FILES MAY BE TRANSMITTED TO HASP OR WRITTEN WITH DATA RETRIEVED FROM HASP. NO MODIFICATIONS TO HASP ARE REQUIRED. SUPPORTS ANY AND ALL IBM DISKS FOR THE 1130. ANY NUMBER OF DISKS MAY BE ONLINE CONCURRENTLY. DISKS MAY BE LOADED AND UNLOADED WHILE ONLINE.

PROGRAMMING LANGUAGE - S/360 BASIC ASSEMBLER

MINIMUM SYSTEM REQUIREMENTS - 1130 DMS-II AND HASP

DOCUMENTATION: 25 PAGES, $.25 ADDITIONAL CHARGE.
CARD COUNT: 1525 APPROXIMATE.
SUBMITTAL/REVISION DATE: 3/74.
CONTINUED FROM PRIOR COLUMN

SEQUENCE, ACCURACY OF SIGNIFICANT BITS, ETC., CAN BE FOUND IN COMMENT SECTION OF THE PROGRAM LISTING.

PROGRAMMING SYSTEMS - WRITTEN IN ASSEMBLER (F), AND HAS BEEN COMPILED AND TESTED USING OS ON A S/360 MODEL 50.

MINIMUM SYSTEM REQUIREMENTS - THE CVFLO8 PROGRAM SHOULD RUN ON ANY S/360 MODEL 30 AND UP.

DOCUMENTATION: 8 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 200 APPROXIMATE.
SUBMITTAL/REVISION DATE: 12/68

360D-06.6.004

CHARACTER FILTER PL/I

AUTHOR: H. P. SIEGLAFF

DIRECT TECHNICAL INQUIRIES TO:
H. P. SIEGLAFF
3610 W. NORTHVIEW
PHOENIX, ARIZONA 85021

DESCRIPTION - THE SUBROUTINE PROVIDES A MEANS TO SKIP OR SEEK SPECIFIED CHARACTERS WHILE SCANNING A STRING OF CHARACTERS FOR A PL/I PROGRAM. THE ROUTINE CAN BE USED TO FILTER IN/OUT ALPHABETIC, NUMERIC, ALPHANUMERIC, OR OTHER CHARACTERS WHILE SCANNING A CHARACTER STRING.

PROGRAMMING SYSTEMS - THE SUBROUTINE IS WRITTEN IN OS ASSEMBLY LANGUAGE F AND WAS TESTED USING OS PL/I LANGUAGE F LEVEL AND OS VERSION 13 ON A S/360 MODEL 50.

MINIMUM SYSTEM REQUIREMENTS - THE PACKAGE SHOULD WORK ON ANY S/360 MACHINE WITH FORTRAN IV G AND OS. (MAXIMUM CORE REQUIREMENTS IS 1K).

DOCUMENTATION: 8 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 150 APPROXIMATE.
SUBMITTAL/REVISION DATE: 12/68

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360D-06.7.018

BSEARCH - A RANDOM ACCESS BINARY-SEARCH TECHNIQUE FOR SEQUENTIAL FILES ON DISK OR DRUM

AUTHOR: R. K. SIPHERD

DIRECT TECHNICAL INQUIRIES TO:
TECHNICAL ASSISTANCE
CURRENTLY NOT AVAILABLE

DESCRIPTION - TO SEARCH A SEQUENTIALLY ORGANIZED FILE ON A DIRECT-ACCESS DEVICE CONTAINING FIXED LENGTH RECORDS, BLOCKED OR UNBLOCKED, BY MEANS OF A BINARY-SEARCH TECHNIQUE. THE DESIRED LOGICAL RECORD IS PLACED INTO USER-SPECIFIED RECEIVING AREA IF IT CAN BE FOUND; IF IT IS NOT FOUND, BLANKS ARE PUT INTO THE AREA.
WHEN SEARCH A LARGE, SEQUENTIALLY ORGANIZED FILE ON A DISK OR DRUM THIS ROUTINE WILL SIGNIFICANTLY IMPROVE RUN TIME BY REQUIRING ONLY AN ABSOLUTE MINIMUM NUMBER OF I/O OPERATIONS, AS OPPOSED TO A SEQUENTIAL SEARCH WHICH MUST READ ON THE AVERAGE, HALF THE FILE TO FIND THE RECORD. IMPROVEMENT IS PARTICULARLY NOTICEABLE IN CASES WHERE THE SAME FILE MUST BE SEARCHED REPETITIVELY.

PROGRAMMING SYSTEMS - WRITTEN IN OS/360 ASSEMBLER LANGUAGE.

MINIMUM SYSTEM REQUIREMENTS - STORAGE REQUIRED, 1440 BYTES FOR PROGRAM, PLUS EITHER 350 bytes OR THE FILE BLOCKSIZE, WHICH EVER IS LARGER.

NOTES: CURRENTLY IMPLEMENTED ONLY FOR 2311, 2314, AND 2301 DEVICES.

DOCUMENTATION: 18 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 550 APPROXIMATE.
SUBMITTAL/REVISION DATE: 12/68

360D-06.7.022
OS/360 QUIC (KWIC INDEXING)

AUTHOR: J. A. STARKWEATHER
R. KARPINSKI

DIRECT TECHNICAL INQUIRIES TO:
R. KARPINSKI
INFORMATION SYSTEMS, 76-U
UNIVERSITY OF CALIFORNIA
SAN FRANCISCO, CA 94143

DESCRIPTION - QUIC PRODUCES KWIC INDEXES FOR A VARIETY OF PURPOSES. MANY OPTIONS PERMIT MODIFYING VARIOUS ASPECTS OF THE PROCESS AND RESULTS. THE PROGRAM IS RUN AS A THREE STEP JOB: INPUT-(PL/1); SORT-(OS/360 SORT-MERGE); OUTPUT-(PL/1).

PROGRAMMING SYSTEMS - WRITTEN IN PL/1F FOR OS/360.

MINIMUM SYSTEM REQUIREMENTS - APPROXIMATELY 100K BYTES ARE USED BUT THE PROGRAM REQUIRES NO SPECIAL EQUIPMENT.

DOCUMENTATION: 15 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 1,550 APPROXIMATE.
SUBMITTAL/REVISION DATE: 12/68
360D-06.7.026
THE NRIMS ADDRESSING SYSTEM

AUTHOR: ANDRZEJ P. K. DABROWSKI

DIRECT TECHNICAL INQUIRIES TO:
ANDRZEJ P. K. DABROWSKI
COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH
P. O. BOX 395
PRETORIA, SOUTH AFRICA

DESCRIPTION - THE NRIMS ADDRESSING SYSTEM PROVIDES FOR THE MAINTENANCE AND OPERATION OF A SINGLE ADDRESS LIST FOR A WIDE SPECTRUM OF SUBSCRIBERS. THE RECORD FOR EACH SUBSCRIBER CONTAINS IN ADDITION TO HIS ADDRESS, INFORMATION REGARDING THE PARTICULAR PUBLICATIONS HE WISHES TO RECEIVE, HIS DISCIPLINARY FIELDS OF INTEREST, AND HIS CATEGORY OF EMPLOYMENT AND PROFESSIONAL STATUS. THESE THREE CRITERIA CAN BE USED TO GENERATE A MAILING LIST, PRINTED ON CONTINUOUS FORM ADDRESS LABEL PAPER, FOR THE PARTICULAR MATERIAL WHICH IS TO BE Mailed.

PROGRAMMING SYSTEMS - PROGRAMMING LANGUAGE - OS/360 ASSEMBLER

MINIMUM SYSTEM REQUIREMENTS - THOSE REQUIRED BY OS/360

DOCUMENTATION: 35 PAGES, $.75 ADDITIONAL CHARGE.
CARD COUNT: 5,650 APPROXIMATE.
SUBMITTAL/REVISION DATE: /71

360D-06.7.027
BAYLOR INFORMATION ANALYSIS SYSTEM (BIAS)

AUTHOR: ALAN BEALE

DIRECT TECHNICAL INQUIRIES TO:
ALAN BEALE
INSTITUTE OF COMPUTER SCIENCE
BAYLOR COLLEGE OF MEDICINE
1200 MOURSUND
HOUSTON, TEXAS 77025

DESCRIPTION - BIAS, THE BAYLOR INFORMATION ANALYSIS SYSTEM, IS A VERSATILE DATA BASE SYSTEM. IT ALLOWS ACCESS TO ANY NUMBER OF DATA BASES, CONTAINING RECORDS OF VARYING LENGTH, COMPLEXITY AND INDEXING STRUCTURE, BY ANY NUMBER OF USERS, BOTH IN BATCH AND INTERACTIVELY. COMPONENTS OF THE SYSTEM ARE:

1. THE BIAS FILER. THIS COMPONENT MAKES ALL ADDITIONS, DELETIONS AND UPDATES TO BIAS DATA. BECAUSE THIS ACTIVITY IS CONCENTRATED IN ONE TASK, VARIOUS SYNCHRONIZATION AND RELIABILITY PROBLEMS ARE AVOIDED.

2. THE BIAS TP PROGRAM. THIS IS A MULTI-USER INTERACTIVE PROGRAM TO RETRIEVE, MODIFY, DELETE AND ADD INDIVIDUAL DATA RECORDS.

3. THE BIAS TABLE ASSEMBLER. THIS IS A BATCH PROGRAM USED TO DEFINE TO BIAS THE LAYOUT AND INDEXING STRUCTURE OF THE RECORDS OF A DATA BASE. IT ALSO PROVIDES DATA PASSWORDS AND THE DEGREE OF PROTECTION DESIRED.

4. THE BIAS RETRIEVAL PROGRAM (BOOLRET). THIS IS AN INTERACTIVE PROGRAM ALLOWING A DATA BASE TO BE SEARCHED FOR RECORDS THAT SATISFY ONE OR MORE PROPERTIES, GATHERING STATISTICS AND FREQUENCY COUNTS ON SELECTED ITEMS IN THE PROCESS. THE PROPERTIES ARE EXPRESSED IN THE FORM OF "BOOLEAN QUESTIONS", USING AN ALGOL-LIKE LANGUAGE.

5. VARIOUS UTILITIES, BOTH SYSTEM AND USER. USER UTILITIES INCLUDE A LOADER, TO LOAD DATA INTO THE SYSTEM, AND AN INTERACTIVE PASSWORD MODIFICATION UTILITY. SYSTEM UTILITIES INCLUDE A FILE RECOVERY PROGRAM AND A SYSTEM ACCOUNTING ROUTINE.

6. ALL FACILITIES OF BIAS ARE AVAILABLE TO PROGRAMS WRITTEN IN PL/I, THROUGH USE OF SEVERAL LIBRARIES OF INTERFACE ROUTINES. THESE INCLUDE RECORD MODIFICATION AND RETRIEVAL ROUTINES, PASSWORD VERIFICATION ROUTINES, AND CONVERSION ROUTINES.

IMPORTANT FEATURES OF THE SYSTEM ARE:

1. ALL DATA IS STORED IN ONE OS DATA SET, THEREBY REDUCING OVERHEAD AND THE NEED TO PROVIDE ROOM FOR GROWTH FOR EACH DATA BASE INDEPENDENTLY. DATA STORED ON THIS FILE IS GENERALLY STORED IN "BLANK-SUPPRESSED" FORM, SO THAT NO SPACE IS OCCUPIED BY MISSING DATA. THE FILER IS THE ONLY TASK IN THE BIAS SYSTEM THAT CAN USE THE BIAS DATA FILE FOR OUTPUT. EVEN THOUGH ALL DATA IS
CONTINUED FROM PRIOR COLUMN

STORED IN THE SAME DATA SET, A USER MAY ONLY RETRIEVE OR MODIFY DATA FOR WHICH HE PROVIDES THE CORRECT PASSWORD. FURTHER, PASSWORDS MAY BE EASILY (AND INTERACTIVELY) CHANGED AT ANY TIME.

2. A DATA CLASS MAY BE REFINED AFTER CREATION, IF APPROPRIATE. THE INDEXING STRUCTURE MAY NOT BE CHANGED, BUT DATA ITEMS MAY BE ADDED, REMOVED OR CHANGED IN CHARACTERISTICS. THE RECORD SIZE MAY ALSO BE INCREASED OR DECREASED. HOWEVER, ANY RECORD WHOSE MEANING IS CHANGED BY THIS PROCESS SHOULD BE REFILED.

3. FILE REORGANIZATION IS Periodically NECESSARY. HOWEVER, THE REORGANIZATION (CALLED "DATASPACE RECLAMATION") IS PERFORMED BY THE FILER, AND DOES NOT INHIBIT THE COMPLETE USE OF THE SYSTEM, OTHER THAN BY FRACTIONALLY INCREASING RESPONSE TIME.

4. FILE INTEGRITY IS PRESERVED EVEN IF THE FILER ABENDS, OR THE OPERATING SYSTEM CRASHES. ADDITIONALLY, THE SYSTEM MAY BE GENERATED TO RECORD ALL UPDATE TRANSACTIONS. IF THE FILE IS HARMED OR LOST, IT MAY BE RESTORED FROM A BACKUP, AND Brought UP TO DATE THROUGH APPLICATION OF THE RECORDED TRANSACTIONS, USING A SYSTEM UTILITY.

SYSTEM CHARACTERISTICS OF BIAS ARE:

1. THE INTERACTIVE PARTS OF BIAS WERE WRITTEN UNDER BEST (THE BAYLOR EXECUTIVE SYSTEM FOR TELEPROCESSING), WHICH IS IN THE SHARE PROGRAM LIBRARY (360D-05.1.018). THE SYSTEM IS ADAPTABLE TO OTHER TP SYSTEMS (E.G., TSO), AND SUGGESTIONS ARE INCLUDED IN THE DOCUMENTATION FOR CONVERSION.

2. BIAS RUNS EXCLUSIVELY AS A PROBLEM PROGRAM. IT MAKES USE OF ONE USER SVC (TYPE II OR III) FOR INTER-REGION COMMUNICATION.

3. BIAS IS CURRENTLY RUNNING UNDER OS/MFT, RELEASE 21.8. IT SHOULD RUN WITHOUT CHANGE UNDER MVT, BUT THIS HAS NOT BEEN TESTED. BIAS SHOULD ALSO RUN UNDER VS1, PROVIDED THE TP INTERFACES WERE CHANGED TO USE A VS1-SUPPORTED SYSTEM. IT SHOULD ALSO RUN UNDER VS2 WITH AN APPROPRIATE TP SYSTEM, IF THE COMMUNICATION SVC WERE REWRITTEN.

4. BIAS IS WRITTEN IN ASSEMBLY LANGUAGE AND PL/I. THE CRITICAL SYSTEM COMPONENTS, SUCH AS THE FILES AND

CONTINUED FROM PRIOR COLUMN


5. NO SPECIAL ACCESS METHODS OR APPENDAGES ARE NEEDED FOR BIAS. ALL I/O IS PERFORMED THROUGH QSAM, BSAM, BPAM AND BDAM.

6. THE AMOUNT OF CORE REQUIRED FOR BIAS DEPENDS ON GENERATION PARAMETERS, SUCH AS MAXIMUM RECORD SIZE AND MAXIMUM NUMBER OF SIMULTANEOUS USERS. PRACTICAL MINIMA ARE 52K EACH FOR THE FILER AND TP PROGRAM AND 100K FOR BOOLET.

ABOUT 350 PAGES OF DOCUMENTATION (MACHINE-READABLE), BOTH USER AND SYSTEM, IS PROVIDED WITH BIAS.

BIAS HAS BEEN RUNNING FOR PRODUCTION AT BAYLOR FOR A YEAR AND A HALF. THERE ARE CURRENTLY ABOUT 30 DATA CLASSES IN USE, TOTALING 200,000 RECORDS AND 24,000,000 BYTES OF DATA.

PROGRAMMING LANGUAGE - ASSEMBLER AND PL/I

MINIMUM SYSTEM REQUIREMENTS - SEE DESCRIPTION DOCUMENTATION: 8 PAGES, NO ADDITIONAL CHARGE. (PLUS MACHINE-READABLE DOCUMENTATION)
CARD COUNT: NOT AVAILABLE ON CARDS.
SUBMITTAL/REVISION DATE: 12/75
REQUIRES 1200 FT. TAPE FOR DISTRIBUTION AT 800 BPI.

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360D-06.7.028
SELECT PROGRAM

AUTHORS: DORON STEGER & GUNNAR GRUVAEUS

DIRECT TECHNICAL INQUIRIES TO:
DORON STEGER OR GUNNAR GRUVAEUS
HOECHST-BOUSSSEL PHARMACEUTICALS, INC.
ROUTE 202-206 NORTH
SOMERVILLE, NJ 08876

DESCRIPTION - IN CASES WHERE MANY PROGRAMS MAKE USE OF THE SAME DATA, IT IS AS A RULE BOTH DIFFICULT AND EXPENSIVE TO
MAINTAIN A SEPARATE DATA FILE FOR EACH PROGRAM AND INSTEAD ONLY A COMPLETE DATA FILE IS MADE AVAILABLE. THE SELECT PROGRAM WAS DESIGNED TO ACT AS AN INTERFACE BETWEEN SUCH A DATA STRUCTURE AND PROGRAMS THAT WILL ANALYZE THIS DATA. SELECT LOGICALLY PARTITIONS ANY FIXED LENGTH RECORD SEQUENTIAL FILE ACCORDING TO USER SPECIFICATIONS AND THEN SELECTS THOSE PORTIONS OF DATA WHICH ARE SPECIFIC TO THE REQUIREMENTS OF THE USER PROGRAM. SELECT ALSO PROVIDES COUNTS OF VARIOUS BREAKDOWNS OF THE DATA (NUMBER OF GROUPS, NUMBER OF CASES IN EACH GROUP, ETC.). THE USER DESCRIBES FIELDS USED BY SELECT BY SUPPLYING POSITION AND LENGTH OF THE FIELD WITHIN THE DATA, THUS ELIMINATING THE NEED FOR A DATA BASE DICTIONARY.

PROGRAMMING LANGUAGE - FORTRAN G OR PL/I

MINIMUM SYSTEM REQUIREMENTS - 90K AND A FORTRAN IV OR PL/I COMPILER

DOCUMENTATION: MACHINE READABLE DOCUMENTATION ONLY.

CARD COUNT: NOT AVAILABLE ON CARDS.

SUBMITTAL/REVISION DATE: 11/76

360D-06.8.002

LPI

AUTHOR: D. RITCHIE

DIRECT TECHNICAL INQUIRIES TO:

DEAN RITCHIE

COMPUTING CENTER

WASHINGTON STATE UNIVERSITY

PULLMAN, WASHINGTON 99163

DESCRIPTION - LPI IS A SMALL SET OF SUBPROGRAMS FOR USE BY FORTRAN PROGRAMMERS TO PERFORM THE BASIC FUNCTIONS OF LIST PROCESSING. THIS PAPER DESCRIBES AND EVALUATES LPI, COMPARING IT SPECIFICALLY WITH SLIP, A SIMILAR SYSTEM.

PROGRAMMING SYSTEMS - OPERATES UNDER OS/360.

MINIMUM SYSTEM REQUIREMENTS - LPI REQUIRES ONLY SUFFICIENT HARDWARE TO COMPILE AND EXECUTE FORTRAN PROGRAMS.

DOCUMENTATION: 22 PAGES, $.10 ADDITIONAL CHARGE.

CARD COUNT: 250 APPROXIMATE.

SUBMITTAL/REVISION DATE: 06/69
WSUSTACK is a re-enterable subprogram which dynamically creates and maintains core-resident stacks in an OS/360 assembler language environment. It may be assembled and used on an IBM S/360 under any version of OS since release 14.

Stack lengths are limited only by the main storage available to the task, the size of the stack node may vary from 1 to 256 bytes and is constant for a given stack, and any number of stacks may be maintained concurrently.

As one of the design objectives was optimization of storage and execution time, the calling sequences are non-standard. Accordingly a companion set of macro instructions is provided to generate the proper calling sequences. The functions available, each of which is called by a corresponding macro instruction, are: allocate and initialize stack, delete stack, stack a node, unstack a node, reset stack to the empty condition, index stack (locate a node satisfying given conditions).

Programming language - assembler

Minimum system requirements - OS/360

Documentation: 26 pages, $.30 additional charge.
Card count: 600 approximate.
Submittal/revision date: 8/73.
PLOTS - A SUBROUTINE FOR TIME-SERIES PLOTTING ON A PRINTER

AUTHOR: MR. R. H. KARPINSKI

DIRECT TECHNICAL INQUIRIES TO:
MR. R. H. KARPINSKI
INFORMATION SYSTEMS, 76-U
UNIVERSITY OF CALIFORNIA
SAN FRANCISCO, CA 94143

DESCRIPTION - TO USE "PLOTS" TO PLOT N CURVES - CALL PLOTS (-N, RANGES) WHERE N EQUALS NUMBER OF CURVES (THIS ARGUMENT SHOULD BE NEGATIVE FOR THE SETUP CALL, CAUSING A NEW PLOT TO BE STARTED), AND RANGES EQUALS AN ARRAY OF SIZE 3N PLUS 3:

- RANGES (1) - TIME ZERO (TIME OF BEGINNING OF PLOT).
- RANGES (2) - DELTA TIME (TIME INCREMENT PER PLOT LINE).
- RANGES (3) - 1 (TIME WILL BE PRINTED EVERY 1 LINES, UNLESS 1 IS LESS THAN ZERO).
- RANGES (4) - X(1) MIN. (MINIMUM VALUE TO BE PLOTTED FOR FIRST CURVE).
- RANGES (5) - X(1) MAX. (MAXIMUM VALUE TO BE PLOTTED FOR FIRST CURVE).
- RANGES (6) - X(1) CHAR. (CHARACTER TO BE PLOTTED TO INDICATE FIRST CURVE).
- RANGES (3N PLUS 1) - X(N) MIN.
- RANGES (3N PLUS 2) - X(N) MAX.
- RANGES (3N PLUS 3) - X(N) CHAR.

FOR EACH LINE DESIRED (I.E. CALL "PLOTS" MANY TIMES OVER FOR EACH TIME INCREMENT), CALL PLOTS (N, X) WHERE N EQUALS THE NUMBER OF CURVES AND X(I) EQUALS THE CURRENT VALUE OF THE ITH CURVE. "PLOTS" WILL ACTUALLY PLOT A VALUE UP TO, BUT NOT INCLUDING, MAX. PLUS (MAX-MIN) * 0.01 IN THE 101ST POSITION. N SHOULD BE BETWEEN 1 AND 100.

PROGRAMMING SYSTEMS - WRITTEN IN FORTRAN IV.

MINIMUM SYSTEM REQUIREMENTS - THOSE REQUIRED FOR OS/360.

DOCUMENTATION: 6 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 100 APPROXIMATE.
SUBMITTAL/REVISION DATE: 02/67

INTERFACE BETWEEN PL/I USER PROGRAMS AND CALCOMP ROUTINES

AUTHOR: MR. E. H. REMY

DIRECT TECHNICAL INQUIRIES TO:
MR. E. H. REMY
EASTMAN KODAK CO.
BLDG. 56, KODAK PARK
ROCHESTER, NEW YORK 14650

DESCRIPTION - THE OS/360 PLOTTING ROUTINES PROVIDED BY CALCOMP ARE WRITTEN IN FORTRAN AND ASSEMBLER AND ARE DESIGNED TO BE USED BY A FORTRAN PROGRAM. THESE ROUTINES MAY BE CALLED BY A PL/I PROGRAM BUT SUCH USE DOES NOT PERMIT SOME COMMONLY USED PL/I FEATURES SUCH AS CHARACTER STRINGS. IT IS ALSO AN INCONVENIENCE FOR A PL/I PROGRAMMER TO ADHERE TO FORTRAN LINKAGE CONVENTIONS SUCH AS AVOIDING PASSING DOPE VECTORS. TO PERMIT THE PL/I PROGRAMMER TO USE STRAIGHT-FORWARD PL/I STATEMENTS IN PLOT PROGRAMS, THIS INTERFACE HAS BEEN WRITTEN TO INTERCEPT THE LINKAGE BETWEEN THE USER'S PROGRAM AND THE ROUTINES PROVIDED BY CALCOMP. LINKAGE EDITOR "CHANGE" CARDS ARE USED TO PERMIT THE INTERFACE TO HAVE ENTRY POINTS WITH THE SAME NAMES AS THE ROUTINES PROVIDED BY CALCOMP. THE JCL MAY BE MODIFIED TO CONFORM TO AN INSTALLATION'S PROCEDURES AND NAMING CONVENTIONS.

PROGRAMMING SYSTEMS - WRITTEN IN FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - THOSE REQUIRED FOR OS/360.

DOCUMENTATION: 14 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 200 APPROXIMATE.
SUBMITTAL/REVISION DATE: NOT KNOWN
PLOT - A SUBROUTINE FOR PLOTTING ON A PRINTER

AUTHOR: MR. L. ISRAEL

DIRECT TECHNICAL INQUIRIES TO:

TECHNICAL ASSISTANCE
NOT CURRENTLY AVAILABLE.

DESCRIPTION - THE SUBROUTINE PLOT IS USED FOR PLOTTING ON A PRINTER. IT WILL PRINT ONE TO NINE SETS OF DEPENDENT VARIABLES AGAINST AN INDEPENDENT VARIABLE, AND/OR A CURVE OF CALCULATED VALUES.

PROGRAMMING SYSTEMS - WRITTEN IN BASIC FORTRAN IV.

MINIMUM SYSTEM REQUIREMENTS - THOSE REQUIRED FOR OS/360.

DOCUMENTATION: 18 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 250 APPROXIMATE.
SUBMITTAL/REVISION DATE: 10/67

S. GIULIERI. IT IS COMPATIBLE WITH FORTRAN II, HOWEVER, IT HAS ONLY BEEN CHECKED OUT ON FORTRAN G.

PROGRAMMING SYSTEMS - WRITTEN IN FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - THE PROGRAM WAS RUN ON AN IBM 360-1665 USING LESS THAN 270K.

DOCUMENTATION: 46 PAGES, $1.30 ADDITIONAL CHARGE.
CARD COUNT: 2,000 APPROXIMATE.
SUBMITTAL/REVISION DATE: 08/69

PNRG, PERSPECTIVE PLOTTING ROUTINE, ARBITRARY GRID

AUTHOR: B. KUBERT

DIRECT TECHNICAL INQUIRIES TO:

TECHNICAL ASSISTANCE
NOT CURRENTLY AVAILABLE.

DESCRIPTION - THIS SUBROUTINE GENERATES PERSPECTIVE PLOTS OF CURVES AND SURFACES. THE SURFACES REPRESENT FUNCTIONS OF TWO VARIABLES, F(X,Y), WHICH SATISFY CERTAIN RESTRICTIONS. AS AN OPTION THE SURFACES MAY BE TAKEN TO BE OPAQUE, IN WHICH CASE ALL HIDDEN LINES ARE ELIMINATED. THE INPUT DATA FOR A CURVE IS A SET OF CONSECUTIVE POINTS LYING ON THE CURVE. THE INPUT DATA FOR THE SURFACE IS GIVEN IN THREE ARRAYS, ONE CONTAINING X-COORDINATES, ONE CONTAINING Y-COORDINATES, AND THE OTHER CONTAINING Z-COORDINATES OF THE MESH POINTS T. THE INPUT DATA FOR A CURVE IS A MODIFICATION OF A SUBROUTINE WRITTEN BY J. SZABO AND S. GIULIERI.

PROGRAMMING SYSTEMS - WRITTEN IN OS/260 FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - THE PROGRAM WAS RUN ON AN IBM 360-1665 USING LESS THAN 270K.
360D-08.6.013

PLT360, IBM 1627 PLOTTING ROUTINE

AUTHOR: MAUREEN CLARK

DIRECT TECHNICAL INQUIRIES TO:

TECHNICAL ASSISTANCE
CURRENTLY NOT AVAILABLE.

DESCRIPTION - THIS ROUTINE WILL PLOT FROM ONE TO SEVEN
DEPENDENT VARIABLES VS. AN INDEPENDENT VARIABLE FROM USER-
SUPPLIED INFORMATION. PLT360 IS ON THE S/360 LIBRARY.
ALL CALLS FROM FORTRAN ARE TO PLT. SUBROUTINES PLT1 AND
PLTW ARE CALLED BY PLT. PLT360 IS THE OS/360 ASSEMBLER
LANGUAGE VERSION OF THE 7040-7094 DCS ROUTINES PLT(AM01B),
PLT1(AM10A), AND PLTW(AM11A), WHICH WERE MAJOR REVISIONS
OF RW CCP AND RW CCP2, WRITTEN BY K. G. TOMIKAWA AND J.
R. BLACKMER, RESPECTIVELY, IN AUGUST OF 1962, AT SPACE
TECHNOLOGY LABORATORIES, REDONDO BEACH, CALIFORNIA.

PROGRAMMING SYSTEMS - WRITTEN IN OS/360 ASSEMBLER LANGUAGE.

MINIMUM SYSTEM REQUIREMENTS - TOTAL STORAGE REQUIRED (BYTES)
IS 236C(16) OR 9046(10). THIS PROGRAM WAS RUN ON AN IBM
360-IH65.

DOCUMENTATION: 52 PAGES, $1.60 ADDITIONAL CHARGE.
CARD COUNT: 2,300 APPROXIMATE.
SUBMITTAL/REVISION DATE: 08/69

360D-08.7.003

HISTOGRAM DISPLAY SUBROUTINE

AUTHOR: D. ASHLER

DIRECT TECHNICAL INQUIRIES TO:

DR. D. ASHLER
OFFICE OF RESEARCH AND EVALUATION
ROOM 400
SCHOOL DISTRICT OF PHILADELPHIA
21ST ST. AND BENJ. FRANKLIN PARKWAY
PHILADELPHIA, PA 19103

DESCRIPTION - SUBROUTINE HIST MAY BE CALLED TO OBTAIN THE
MEAN, STANDARD DEVIATION, QUARTILES, AND A HISTOGRAM OF
A DISTRIBUTION. THE CALL MUST SUPPLY THE NAME AND THE
LENGTH OF A ONE-DIMENSIONAL ARRAY OF REAL*4 NUMBERS; HIST
SORTS THESE NUMBERS IN PLACE, SUBDIVIDES THEIR RANGE INTO
FOURTEEN EQUAL INTERVALS, AND PRINTS A 14-BAR HISTOGRAM
ON A SINGLE PAGE. THE MEAN AND THE QUARTILE BOUNDARIES
ARE MARKED ON THE HISTOGRAM. THE VALUES OF THE FOURTEEN
FREQUENCIES ARE PRINTED ABOVE IT, THE VALUES OF THE INTERVAL
BOUNDARIES AND OF THE MEAN, QUARTILE BOUNDARIES, AND THE
STANDARD DEVIATION ARE PRINTED BELOW IT. PROVISION IS
ALSO MADE FOR DISPLAYING A LEGEND AT THE BOTTOM OF THE
PAGE AND IN THE UPPER LEFT CORNER.

PROGRAMMING SYSTEMS - UTILIZES OS/360.

MINIMUM SYSTEM REQUIREMENTS - THOSE REQUIRED FOR OS/360.

DOCUMENTATION: 14 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 300 APPROXIMATE.
SUBMITTAL/REVISION DATE: 04/68
INTERSECTION DETECTION IN THREE DIMENSIONS - A TOOL FOR
COMPUTER AIDED ENGINEERING DESIGN AND GRAPHIC DISPLAY

AUTHOR: P. G. COMBA

DIRECT TECHNICAL INQUIRIES TO:
DR. P. G. COMBA
IBM CORPORATION
CAMBRIDGE SCIENTIFIC CENTER
545 TECHNOLOGY SQUARE
CAMBRIDGE, MA 02139

DESCRIPTION - THE INTERSECTION DETECTION PROGRAM (ID/3D)
IS A SYSTEM OF FORTRAN SUBROUTINES THAT ENABLES THE USER
TO - DEFINE 3-DIMENSIONAL CONVEX OBJECTS BOUNDED BY PLANES
AND QUADRIC SURFACES - DEFINE LINE SEGMENTS IN 3-SPACE
- TEST FOR INTERSECTIONS BETWEEN PAIRS OF OBJECTS - TEST
FOR INTERSECTIONS BETWEEN SEGMENTS AND OBJECTS. THE PROGRAM
IS PRIMARILY A TOOL FOR THE SOLUTION OF PIPE ROUTING
AND COMPONENT PLACEMENT PROBLEMS. THE SEGMENT-OBJECT
INTERSECTION TEST CAN ALSO BE USED TO SOLVE THE HIDDEN
LINE PROBLEM IN COMPUTING GRAPHIC DISPLAYS OF 3-DIMENSIONAL
OBJECTS.

PROGRAMMING SYSTEMS - CAN RUN UNDER OS/360 OR BPS.

MINIMUM SYSTEM REQUIREMENTS - REQUIRES 128K CORE STORAGE.
(NOTE- THE AMOUNT OF CORE NEEDED FOR COMPILATION AND LINKAGE
EDITING DEPENDS ON THE VERSION OF THE COMPILER AND LINKAGE
EDITOR BEING USED. THE PROGRAM HAS BEEN COMPILED AND
TESTED UNDER BPS WITH 128K STORAGE, AND UNDER OS FORTRAN G AND
FORTRAN H LEVELS WITH 512K STORAGE).

DOCUMENTATION: 59 PAGES, $1.95 ADDITIONAL CHARGE.
CARD COUNT: 3,000 APPROXIMATE.
SUBMITTAL/REVISION DATE: 12/67

SPLOT - ONE PAGE GRAPH-PRINTING SUBROUTINE

AUTHOR: D. ASHLER

DIRECT TECHNICAL INQUIRIES TO:
DR. D. ASHLER
OFFICE OF RESEARCH AND EVALUATION
ROOM 400
SCHOOL DISTRICT OF PHILADELPHIA
21ST ST. AND BENJ. FRANKLIN PARKWAY
PHILADELPHIA, PA 19103

DESCRIPTION - SUBROUTINE SPLOT CONSTRUCTS AND PRINTS A
ONE-PAGE GRAPH ON A PRINTER, E.G., IBM 1403, THAT IS
NORMALLY SET UP TO PRINT TEN CHARACTERS PER INCH
HORIZONTALLY, 132 CHARACTERS PER LINE, AT A VERTICAL LINE
SPACING OF SIX LINES PER INCH. MULTIPLE ENTRIES ARE USED
TO PROVIDE MAXIMUM FLEXIBILITY. AN AREA OF MEMORY SIMULATES
THE GRAPH PAGE. IT IS INITIALIZED TO ALL BLANKS. MAXIMUM
AND MINIMUM VALUES OF THE TWO VARIABLES ARE SUPPLIED FOR
SCALING PURPOSES. POINTS ARE FLOTTED BY REPLACING THE
BLANKS WITH ANY DESIRED CHARACTERS. WHEN THE GRAPH IS
COMPLETE, A CALL TO GRAPH PRINTS IT OUT, TOGETHER WITH
LEGENDS AT BOTTOM AND AT UPPER LEFT IF DESIRED. A SET
OF POINTS TO BE FLOTTED IS SUPPLIED IN THE FORM OF TWO
ARRAYS, ONE OF ASESSES AND ONE OF ORDINATES, SEVERAL
SETS OF POINTS MAY BE FLOTTED, EACH SET WITH A DIFFERENT
CHARACTER. IF DESIRED, THE POINTS WILL BE PRINTED OUT
SUPERIMPOSED ON A GRID, OR ENCLOSED IN A BOX, WITH SCALE
VALUES PRINTED ALONG THE LEFT EDGE AND BOTTOM. AXES
ARE ALSO OPTIONAL. COORDINATES MAY BE SUPPLIED IN SINGLE OR
DOUBLE PRECISION. SPLOT MAY BE USED TO PRINT PICTURES;
GRAPHS OF EQUATIONS, SCATTERGRAPHS, ETC... HOWEVER, FOR
HISTOGRAMS, HIST IS RECOMMENDED.

PROGRAMMING SYSTEMS - RUNS UNDER OS/360.

MINIMUM SYSTEM REQUIREMENTS - THOSE REQUIRED FOR OS/360.

DOCUMENTATION: 8 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 500 APPROXIMATE.
SUBMITTAL/REVISION DATE: 04/68
COMMERCIAL FEATURE EMULATOR FOR SYSTEM/360 MODEL 44

AUTHOR: ERIC F. BRUBAKER

DIRECT TECHNICAL INQUIRIES TO:

TECHNICAL ASSISTANCE
CURRENTLY NOT AVAILABLE.

DESCRIPTION - THE COMMERCIAL FEATURE FOR THE S/360 MODEL 44 PROVIDES A PROGRAM TO EMULATE THE S/360 INSTRUCTIONS NOT IMPLEMENTED IN HARDWARE. THIS PROGRAM REPLACES THE IBM LEVEL G EMULATOR. THE NEW EMULATOR, DESIGNATED G1, HAS BEEN WRITTEN TO INCREASE EMULATION SPEED. IT WILL NORMALLY PROVIDE AT LEAST A 15% TO 20% REDUCTION IN PROCESSING TIME FOR A MAINLINE (NON-44) PROGRAM. THIS AMOUNT VARIES, OF COURSE, ACCORDING TO THE INSTRUCTION MIX (COBOL MAY BE FASTER, PL/I NOT SO MUCH, DEPENDING UPON THE ACTUAL CODE GENERATED.) THE G1 EMULATOR SUPPORTS STORAGE PROTECTION AND ASCII MODE ARITHMETIC AS OPTIONS, ALLOWING A SLIGHT IMPROVEMENT IF THESE FEATURES ARE NOT DESIRED. THE PROGRAM INCLUDES A CHANNEL LOADER TO BOOTSTRAP IT INTO THE STORAGE EXTENSION, AND IS WRITTEN IN ASSEMBLY LANGUAGE.

THE G1 EMULATOR ENTERED TESTING IN SEPTEMBER 1972. SINCE THAT DATE, TEST SITES HAVE REPORTED PERFORMANCE GAINS RANGING FROM SLIGHTLY UNDER 10% TO OVER 30% ON PARTICULAR JOBS. REPORTS OF OVERALL SYSTEM PERFORMANCE UNDER G1 HAVE BEEN QUITE SATISFYING.

PROGRAMMING LANGUAGE - ASSEMBLY

MINIMUM SYSTEM REQUIREMENTS - S/360 MODEL 44

DOCUMENTATION: 5 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 2585 CARDS APPROXIMATE.
SUBMITTAL/REVISION DATE: 3/73

DCALC

AUTHOR: R. F. ROBIN

DIRECT TECHNICAL INQUIRIES TO:

MR. RICHARD C. GOOD
YALE UNIVERSITY
175 WHITNEY AVE.
NEW HAVEN, CONN. 06520

DESCRIPTION - THE PURPOSE OF DCALC IS TO PROVIDE AN INTERACTIVE DESK-CALCULATOR FACILITY UNDER OS IN AN ENVIRONMENT SUPPORTING 2741'S AND OTHER INTERACTIVE DEVICES. THE CHARACTER STRINGS IN LINES 80-138 OF THE LISTING DESCRIBE ITS USE, AND SHOW HOW IT IS MORE THAN A SIMPLE DESK-CALCULATOR. DCALC USES SYSIN AND SYSPRINT FOR ALL I/O.

MINIMUM SYSTEM REQUIREMENTS - THOSE REQUIRED TO RUN S/360 OS.

DOCUMENTATION: 23 PAGES, $.15 ADDITIONAL CHARGE.
CARD COUNT: 550 APPROXIMATE.
SUBMITTAL/REVISION DATE: 05/68

SIFT BCD CODES TO EBC AND DIAGNOSE FORTRAN IV CONVERSION PROBLEMS UNDER OS/360

AUTHOR: D. JACOBS

DIRECT TECHNICAL INQUIRIES TO:

TECHNICAL ASSISTANCE
CURRENTLY NOT AVAILABLE.

DESCRIPTION - THIS PROGRAM SIFTS BCD CODES INTO EBC AS WELL AS DIAGNOSING CERTAIN CONVERSION PROBLEMS WHICH A FORTRAN IV PROGRAM WILL HAVE UPON CONVERTING TO THE 360. THE PROBLEMS WHICH ARE DIAGNOSED ARE -

- ALL FORMAT STATEMENTS CONTAINING "A5 FORMATS", OR GREATER FLAGGED WITH AN "A". ALL FORMAT STATEMENTS
CONTINUED FROM PRIOR COLUMN

CONTAINING "O FORMATS" ARE FLAGGED WITH AN "O". AT THE
END OF EACH ROUTINE (END INDICATED BY AN "END CARD"),
A REFERENCE TABLE IS PRODUCED INDICATING THE LOCATION OF
EVERY FORMAT STATEMENT (BY ICM) AND THE LOCATION OF THEIR
RESPECTIVE READ/WRITE STATEMENTS (BY ICM).
- EVERY BINARY READ/WRITE STATEMENT IS FLAGGED
WITH A "B".
- EVERY CALL TO A SUBROUTINE WHICH IS NOT IN THE SUBROUTINE
LIBRARY IS FLAGGED WITH A "C". THE STANDARD SUBROUTINE
LIST IS COMPILED BY THE USER AND PUT IN A SEQUENTIAL DATA
SET. A REFERENCE TABLE OF CALLED SUBROUTINES AND WHETHER
OR NOT THEY ARE FLAGGED IS PRODUCED AFTER THE FORMAT/
READ/WRITE REFERENCE TABLE.

PROGRAMMING SYSTEMS—WRITTEN IN ASSEMBLER LANGUAGE.

MINIMUM SYSTEM REQUIREMENTS—THOSE REQUIRED FOR OS/360.

DOCUMENTATION: 31 PAGES, $55 ADDITIONAL CHARGE.
CARD COUNT: 700 APPROXIMATE.
SUBMITAL/REVISION DATE: 11/66

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360D-12.1.024

INTERACTIVE HEX DECIMAL OCTAL CALCULATOR

AUTHOR: D. K. SAKAGUCHI

DIRECT TECHNICAL INQUIRIES TO:
DR. DIANE K. SAKAGUCHI
THE AEROSPACE CORPORATION
P. O. BOX 92957
LOS ANGELES, CA 90009

DESCRIPTION—THE PROGRAM PROVIDES TSO WITH A CALCULATOR
MODE WHICH WILL ACCEPT HEXADECIMAL, OCTAL, OR DECIMAL
INTBERS. IT REQUIRES NO KNOWLEDGE TO USE, AND HAS GOOD
RESPONSE TIME. IT IS MEANT TO BE USED TO HELP READ DUMPS,
WORK WITH THE TEST COMMAND TO CHECK OUT PROGRAMS, PROVIDE A
METHOD FOR COMPOSING HEX TO OCTAL TAPE CONVERSIONS, AND AID IN
SIMIIAR TASKS WHERE OCTAL OR HEX NUMBERS ARE REQUIRED.

PROGRAMMING LANGUAGE—PL/I

MINIMUM SYSTEM REQUIREMENTS—OS/360, TSO.

DOCUMENTATION: 6 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 150 APPROXIMATE.
CONVERT WILL CHANGE MOST CDC FORTRAN STATEMENTS TO COMPATIBLE IBM FORTRAN IV, G LEVEL. IT WAS DESIGNED TO ELIMINATE AS MUCH OF THE HAND-WORK AS POSSIBLE, BUT NOT TO BECOME A FULL-FLEDGED COMPILER. THE PROGRAM LISTS ALL STATEMENTS CHANGED, BOTH THE ORIGINAL AND THE MODIFICATIONS MADE AND PRODUCES FILE OF CONVERTED SOURCE IMAGES READY FOR COMPILATION. COMPILING OF CONVERT WILL PRODUCE COMMENTS LISTING OPTIONS AVAILABLE WHILE SUPPRESSING THE SOURCE LISTING. CONVERT REQUIRES NO SPECIAL SYSTEM FEATURES AND SHOULD RUN ON ANY SNOBOL4 (AT LEAST VER 3.0) SYSTEM.

PROGRAMMING LANGUAGE - SNOBOL4

MINIMUM SYSTEM REQUIREMENTS - ANY SNOBOL4 SYSTEM

DOCUMENTATION: 6 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 350 CARDS APPROXIMATE.
SUBMITTAL/REVISION DATE: 3/73

NLIN: LEAST-SQUARES ESTIMATION OF NON-LINEAR PARAMETERS

AUTHOR: R. A. USANIS
J. A. MIDDLETON

DIRECT TECHNICAL INQUIRIES TO:
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BOX 5445
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DESCRIPTION - NLIN IS A PL/I MAIN PROGRAM WHICH FITS THE MODEL y=f(X,B) TO THE SET OF OBSERVATIONS (Yi,Xi) 1=1(1)N

CONTINUED FROM PRIOR COLUMN

USING THE MAXIMUM NEIGHBORHOOD METHOD DEVELOPED BY D. W. MARQUARDT. X IS A VECTOR OF INDEPENDENT VARIABLES AND B IS A VECTOR OF PARAMETERS ESTIMATED TO MINIMIZE THE SUM OF SQUARES OF (Y-y).

ANY NUMBER OF PROBLEMS CAN BE PROCESSED IN ONE RUN. REQUIRED PARTIAL DERIVATIVES CAN BE ESTIMATED OR DEFINED IN A USER SUPPLIED ROUTINE. OPTIONS ARE PROVIDED TO CONTROL THE DETAIL OF PRINTED RESULTS, TO OMIT PARAMETERS, TO OBTAIN NONLINEAR CONFIDENCE LIMITS, TO ALLOW USE OF VALUES FROM A PREVIOUS PROBLEM, TO USE EITHER PL/I OR FORTRAN EXTERNAL Routines, AND TO CONSTRAIN SELECTED PARAMETERS.

STORAGE REQUIRED IS PROBLEM DEPENDENT WITH SMALL PROBLEMS RUNNING IN 114K.

THE CURRENT RELEASE IS VERSION 3.2 CONTAINING SEVERAL CHANGES IN SOURCE CODE WHICH CORRECT PROBLEMS ENCOUNTERED WHEN IMPLEMENTING EARLIER VERSIONS WITH THE PL/I OPTIMIZING COMPILER.

PROGRAMMING LANGUAGE - PL/I, OPTIONAL ALP MODULES.

MINIMUM SYSTEM REQUIREMENTS - CS PL/I F OR OPTIMIZING COMPILERS.

DOCUMENTATION: 45 PAGES, $1.25 ADDITIONAL CHARGE.
CARD COUNT: 1,350 APPROXIMATE.
SUBMITTAL/REVISION DATE: 6/76

COOLEY-TUKEY FAST FOURIER TRANSFORM

AUTHOR: N. BRENNER

DIRECT TECHNICAL INQUIRIES TO:
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3 SUMNER ROAD
CAMBRIDGE, MA 02138

DESCRIPTION - SUBROUTINE FOURT (DATA,NN,NDIM,ISIGN,IFORM,WCR). THE COOLEY-TUKEY FAST FOURIER TRANSFORM IN USASI BASIC FORTRAN. TRANSFORM (K1,K2,....) EQUALS SUM(DATA(J1,J2,....)*EXP(ISIGN*2*PI*SQRT(-1)*((J1-1)*(K1-1))NN(1) PLUS (J2-1)*(K2-1))NN (2) PLUS...../, SUMMED FOR ALL J1,K1 BETWEEN 1 AND NN(1), J2,K2 BETWEEN 1 AND NN(2), ETC. THERE IS NO LIMIT
CONTINUED FROM PRIOR COLUMN

TO THE NUMBER OF SUBSCRIPTS. DATA IS A MULTIDIMENSIONAL COMPLEX ARRAY (I.E., THE REAL AND IMAGINARY PARTS ARE ADJACENT IN STORAGE, SUCH AS FORTRAN IV PLACES THEM). IF ALL IMAGINARY PARTS ARE ZERO (DATA ARE DISGUISED REAL), SET IFORM TO ZERO TO CUT THE RUNNING TIME BY UP TO FORTY PER CENT. OTHERWISE, IFORM EQUALS PLUS 1. THE LENGTHS OF ALL DIMENSIONS ARE STORED IN ARRAY NN, OF LENGTH NDIM. THEY MAY BE ANY POSITIVE INTEGERS, THOUGH THE PROGRAM RUNS FASTER ON COMPOSITE INTEGERS, AND ESPECIALLY IF A MINUS 1 TRANSFORM IS FOLLOWED BY A PLUS 1 (OR VICE VERSA) THE ORIGINAL DATA REAPPEAR, MULTIPLIED BY NTOT (EQUALS NN(1)*NN(2)*...). TRANSFORM VALUES ARE NOT ALWAYS COMPLEX, AND ARE RETURNED IN ARRAY DATA, REPLACING THE INPUT. IN ADDITION, IF ALL DIMENSIONS ARE NOT POWERS OF TWO, ARRAY WORK MUST BE SUPPLIED, COMPLEX OF LENGTH EQUAL TO THE LARGEST NON 2**K DIMENSION. OTHERWISE, REPLACE WORK BY ZERO IN THE CALLING SEQUENCE. NORMAL FORTRAN DATA ORDERING IS EXPECTED, FIRST SUBSCRIPT VARYING FASTEST. ALL SUBSCRIPTS BEGIN AT ONE. RUNNING TIME IS MUCH FASTER THAN THE NAIVE NTOT**2, BEING PROPORTIONAL TO NTOT*(SUM OF THE PRIME FACTORS OF NTOT PLUS CONST*(NUMBER OF FACTORS OTHER THAN TWOS)). ACCURACY IS ALSO GREATLY IMPROVED, AS THE RMS RELATIVE ERROR IS BOUNDED BY 3*2**(-B)*SUM((PRIME FACTOR)**1.5), WHERE B IS THE NUMBER OF BITS IN THE FLOATING POINT FRACTION. THIS IS THE FASTEST AND MOST VERSATILE VERSION OF THE FFT KNOWN TO THE AUTHOR.

PROGRAMMING SYSTEMS - WRITTEN IN USASI BASIC FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 8K.

DOCUMENTATION: 8 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 800 APPROXIMATE.
SUBMITTAL/REVISION DATE: 09/68

CONTINUED FROM PRIOR COLUMN

(DATA, NN, ISIGN). THE COOLEY-TUKEY FAST FOURIER TRANSFORM IN USASI BASIC FORTRAN. TRANSFORM(K) EQUALS SUM(Data(J)*EXP(ISIGN*2*PI*SQRT(-1)*(J-1)*K-1(NN))), SUMMED OVER ALL J AND K FROM 1 TO NN. DATA IS A ONE-DIMENSIONAL COMPLEX ARRAY (I.E., THE REAL AND IMAGINARY PARTS ARE ADJACENT IN STORAGE, SUCH AS FORTRAN IV PLACES THEM) WHOSE LENGTH NN EQUALS 2**K, K.G.E.O. (IF NECESSARY, APPEND ZEROS TO THE DATA). ISIGN IS PLUS 1 OR MINUS 1. IF A MINUS 1 TRANSFORM IS FOLLOWED BY A PLUS 1 (OR VICE VERSA) THE ORIGINAL DATA REAPPEAR, MULTIPLIED BY NN. TRANSFORM VALUES ARE RETURNED IN ARRAY DATA, REPLACING THE INPUT. THE TIME IS PROPORTIONAL TO NN*LOG2(NN), RATHER THAN THE NAIVE NN**2. ACCURACY IS ALSO GREATLY IMPROVED, THE RMS RELATIVE ERROR BOUNDED BY 6*SQRT(2)*LOG2(NN)*2**(-B), WHERE B IS THE NUMBER OF BITS IN THE FLOATING POINT FRACTION.

PROGRAMMING SYSTEMS - WRITTEN IN USASI BASIC FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 8K.

DOCUMENTATION: 3 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 150 APPROXIMATE.
SUBMITTAL/REVISION DATE: 09/68

360D-13.6.003
NONLINEAR PARAMETER ESTIMATION AND PROGRAMMING

AUTHOR: YONATHAN BARD

DIRECT TECHNICAL INQUIRIES TO:
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IBM CAMBRIDGE SCIENTIFIC CENTER
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DESCRIPTION - THE PROGRAM IS DESIGNED TO SOLVE THE FOLLOWING PROBLEMS:
(1) ESTIMATE UNKNOWN PARAMETERS IN NONLINEAR MATHEMATICAL MODELS, USING ANY OF THE FOLLOWING TECHNIQUES:
(A) LEAST SQUARES
(B) WEIGHTED LEAST SQUARES
(C) MAXIMUM LIKELIHOOD
(D) BAYESIAN ESTIMATION

SPECIAL PROVISIONS ARE INCLUDED FOR MODELS INVOLVING SOLUTIONS OF ORDINARY DIFFERENTIAL EQUATIONS, AND FOR
Continued from prior column

Chemical reaction kinetics equations. Constraints may be imposed on the parameter values.

(2) Solve nonlinear programming problems.

(3) Solve simultaneous equations, two point boundary value problems, and other problems which can be cast in the form of one of the two above mentioned forms.

Programming systems - the program is written in the lowest level FORTRAN IV language.

Minimum system requirements - it can be run on the IBM system/360 under the OS or BPS monitors, on the IBM 7090 or 7094 computer under IBSYS, etc.

Documentation: 97 pages, $3.85 additional charge.

Card count: 2,280 approximate.

Submittal/Revision date: 12/67

360D-13.6.007

Nonlinear least-squares curve fitting program

Author: Fred S. Wood

Direct technical inquiries to:

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Chicago, Illinois 60601
Telephone (312) 856-5860

Description - the program allows the user to estimate the coefficients of a nonlinear equation such as

\[ y = \frac{A}{(x + B)} \] and \[ y = AX^2 + C \] -- equations that are nonlinear in the coefficients. An iterative technique is used; the estimates at each iteration are obtained by Marquardt's Maximum Neighborhood method which combines the Gauss (Taylor series) method and the method of steepest decent.

Since numerous forms of equations can be used, the user must specify the form by providing a subroutine to compute the values of the equation's coefficients. In addition, the user must provide a control card, a format card for reading data and estimates of the starting values of the coefficients. If desired, information cards and coefficient name cards can be read for display on the printout. Such displays are helpful to record the form of the equation, the purpose of the run and any additional information that may help identify the printout in the future. Identification of the coefficients by name is particularly helpful when working with large or complex equations.

The output of the program is a printed report which includes a description of the problem, the starting values of the coefficients, the size of the incremental steps, a summary of each iteration and a summary of the final fit (in terms similar to those in the linear least-squares curve fitting program). The statistics calculated include the number of observations, the number of coefficients, the residual degrees of freedom, the maximum and minimum value of the dependent variable as well as its range, the standard error and t-value for each coefficient, the residual sum of squares, the residual mean square, and the residual root mean square.

Listings are made of the observed and fitted values of the dependent variable -- both in the sequence in which observations were given to the computer, and in the order of the magnitude of the differences between the observed and fitted values. Plots are made to indicate (1) whether these differences are normally distributed and (2) how they are distributed over all the fitted values of the dependent variable. Plots of these differences versus each of the independent variables can be used to choose the appropriate form of the equation and to determine the distribution of the observations over the range of each independent variable.

Provisions are made to run multiple problems as well as different equations using the same data. The program as dimensioned (114K) will handle up to 20 variables and 170 observations. Information is given in the program listings on which dimensions to change in order to reduce the overall dimensions or to increase either the number of variables and/or the number of observations the program will handle.

The machine requirements are a FORTRAN IV compiler, a card reader and a printer.

Examples are given.

For further examples on the use of this program, interpretation of results, glossary of terms, and user's manual, refer to "Fitting equations to data, computer
CONTINUED FROM PRIOR COLUMN

ANALYSIS OF MULTI-FACTOR DATA, BY CULBERT DANIEL AND FRED WOOD, WILEY 1971.

PROGRAMMING SYSTEMS - WRITTEN IN OS FORTRAN IV H LEVEL.

MINIMUM SYSTEM REQUIREMENTS - OS/360 (SEE ABSTRACT).

DOCUMENTATION: 33 PAGES, $65 ADDITIONAL CHARGE.
CARD COUNT: 1,830 APPROXIMATE.
SUBMITTAL/REVISION DATE: 01/76

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360D-13.6.008
LINEAR LEAST-SQUARES CURVE FITTING PROGRAM

AUTHOR: FRED S. WOOD

DIRECT TECHNICAL INQUIRIES TO:
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STANDARD OIL COMPANY (INDIANA)
200 E. RANDOLPH DR.
CHICAGO, IL 60601

DESCRIPTION - THIS COMPUTER PROGRAM HAS MANY OPTIONS WHICH ALLOW THE USER TO TRANSFORM DATA INTO AN APPROPRIATE FORM, FIT SPECIFIED EQUATIONS TO THE TRANSFORMED DATA BY LINEAR LEAST-SQUARES, AND PROVIDES BOTH STATISTICS AND PLOTS TO AID IN EVALUATING THE FIT. A CP-STATISTIC SEARCH TECHNIQUE DETERMINES IF SMALLER SETS OF THE VARIABLES WILL REPRESENT THE DATA EQUALLY WELL.

THE TRANSFORMATIONS WHICH ARE AVAILABLE TO THE USER INCLUDE RECIPROCALS, SUMS, DIFFERENCE, PRODUCTS, QUOTIENTS, LOGARITHMS, AND EXPONENTIALS. SUCH TRANSFORMATIONS ARE USED TO CONVERT THE OBSERVED DATA TO MORE CONVENIENT OR MORE RATIONAL UNITS, TO ADD TERMS THAT ARE FUNCTIONS OF THE DATA-VARIABLES, TO STABILIZE VARIANCE, AND TO OMIT VARIABLES.


CONTINUED FROM PRIOR COLUMN

OBSERVATION. CROSS VERIFICATION OF COEFFICIENTS CAN BE MADE WITH A SECOND SAMPLE OF DATA.

LISTINGS ARE MADE OF THE OBSERVED AND FITTED VALUES OF THE DEPENDENT VARIABLE -- BOTH IN THE SEQUENCE IN WHICH OBSERVATIONS WERE GIVEN TO THE COMPUTER, AND IN THE ORDER OF THE MAGNITUDE OF THE DIFFERENCES BETWEEN THE OBSERVED AND FITTED VALUES. PLOTS ARE MADE TO INDICATE (1) WHETHER THESE DIFFERENCES ARE NORMALLY DISTRIBUTED AND (2) HOW THEY ARE DISTRIBUTED OVER ALL THE FITTED VALUES OF THE DEPENDENT VARIABLE. PLOTS OF THESE DIFFERENCES, TOGETHER WITH THE COMPONENT EFFECTS OF EACH INDEPENDENT VARIABLE, CAN ALSO BE USED (1) TO CHOOSE THE APPROPRIATE FORM OF THE EQUATION, (2) TO DETERMINE THE DISTRIBUTION OF THE OBSERVATIONS OVER THE RANGE OF EACH INDEPENDENT VARIABLE AND (3) TO ASCERTAIN THE INFLUENCE OF EACH OBSERVATION ON EACH COMPONENT OF THE EQUATION.

THE PROGRAM, AS DIMENSIONED, WILL HANDLE UP TO 105 VARIABLES BEFORE TRANSFORMATIONS, 80 AFTER, AND 1000 OBSERVATIONS. PROGRAM CHANGE CARDS ARE INCLUDED TO ALLOW A COMPUTER CENTER TO ALSO OFFER A SMALLER PROGRAM WHICH WILL HANDLE UP TO 35 VARIABLES BEFORE TRANSFORMATIONS, 10 AFTER, AND 200 OBSERVATIONS. MULTIPLE DEPENDENT VARIABLES ARE FITTED ONE AT A TIME AND MULTIPLE FORMS OF SPECIFIED LINEAR EQUATIONS CAN BE FITTED WITH ONE DATA LOADING.


FOR FURTHER EXAMPLES ON THE USE OF THIS PROGRAM, INTERPRETATION OF RESULTS, GLOSSARY OF TERMS, AND USER'S MANUAL, REFER TO "FITTING EQUATIONS TO DATA", COMPUTER ANALYSIS OF MULTIFACTOR DATA FOR SCIENTISTS AND ENGINEERS BY CUTHBERT DANIEL AND FRED WOOD, WILEY 1971.

PROGRAMMING LANGUAGE - OS FORTRAN IV

MINIMUM SYSTEM REQUIREMENTS - SEE ABSTRACT.

DOCUMENTATION: 88 PAGES, $3.40 ADDITIONAL CHARGE
CARD COUNT: 3,700 APPROXIMATE
SUBMITTAL/REVISION DATE: 11/75.
360D-13.7.001
DIALL - GENERAL LEAST SQUARES DIALLEL ANALYSIS OF VARIANCE

AUTHOR: H. E. SCHAFFER R. A. USANIS

DIRECT TECHNICAL INQUIRIES TO:
DR. H. E. SCHAFFER
DEPT. OF GENETICS
N. C. STATE UNIVERSITY
RALEIGH, NORTH CAROLINA 27607


PROGRAMMING SYSTEMS - WRITTEN IN FORTRAN IV, G LEVEL AND TESTED USING OS/360.

MINIMUM SYSTEM REQUIREMENTS - OUTPUT RECORDS UP TO 132 CHARACTERS ARE PRODUCED. NO SPECIAL EQUIPMENT IS REQUIRED.

DOCUMENTATION: 27 PAGES, $.35 ADDITIONAL CHARGE.
CARD COUNT: 1,250 APPROXIMATE.
SUBMITTAL/REVISION DATE: 06/69

360D-15.0.005
TRANSIENT SOLUTIONS FOR MARKOV CHAINS

AUTHOR: WINFRIED K. GRASSMANN AND T. K. NGAI

DIRECT TECHNICAL INQUIRIES TO:
DR. WINFRIED K. GRASSMAN
DEPARTMENT OF COMPUTATIONAL SCIENCE
UNIVERSITY OF SASKATCHEWAN
SASKATOON, SASKATCHEWAN
CANADA

DESCRIPTION - THE PROGRAM FINDS TRANSIENT SOLUTIONS FOR CONTINUOUS MARKOV-CHAINS WITH SPARSE TRANSITION MATRICES. SUCH MARKOV-CHAINS OCCUR FREQUENTLY IN QUEUEING THEORY, ESPECIALLY IN SITUATIONS WITH MORE THAN ONE QUEUE. THE PROGRAM IS WRITTEN IN FORTRAN G. IT CONSISTS OF LESS THAN 200 STATEMENTS AND HAS NO SUBROUTINES. THE METHOD EMPLOYED IS RANDOMIZATION. THE ALGORITHM IS DESCRIBED BY W. GRASSMANN IN "TRANSIENT SOLUTIONS IN SIMPLE QUEUES", WORKING PAPERS OF THE DEPARTMENT OF COMPUTATIONAL SCIENCE, UNIVERSITY OF SASKATCHEWAN, 74-R-2, PAGE 7.

PROGRAMMING LANGUAGE - FORTRAN G

MINIMUM SYSTEM REQUIREMENTS - CS/360, FORTRAN G.

DOCUMENTATION: 25 PAGES, $.25 ADDITIONAL CHARGE.
CARD COUNT: 350 APPROXIMATE.
SUBMITTAL/REVISION DATE: 11/74.

360D-15.1.004
360 GASP III - GENERALIZED ACADEMIC SIMULATION PROGRAM

AUTHOR: J. LINDERMAN R. E. HOLZ

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DESCRIPTION - 360 GASP III IS A SYSTEM FOR EDUCATIONAL SCHEDULING (TIMETABLE CONSTRUCTION, RESOURCE ALLOCATION, SECTIONING, EXAMINATION SCHEDULING, SIMULATION AND PLANNING). THIS VERSION, DESIGNED WITH MODERN INSTITUTIONS...
IN MIND, IS ABLE TO COPE WITH MODULAR SCHEDULING, TEAM TEACHING, ABILITY TRACKING, INDIVIDUAL STUDIES, ETC. IN CONTRAST TO MANY DATA PROCESSING ALGORITHMS, GASP IS BASICALLY HEURISTIC, SEEKING A "SATISFACTORY" SOLUTION RATHER THAN AN "OPTIMAL" ONE. THE APPROACH HAS PROVEN BOTH OPERATIONALLY AND ECONOMICALLY FEASIBLE. MAN-MACHINE INTERACTION IS REQUIRED AND THE SYSTEM IS A SUCCESSFUL AND POWERFUL "TOOL" WHEN USED PROPERLY AS SUCH. SAVINGS IN ADMINISTRATIVE TIME AND EFFECT HAVE BEEN REPORTED AS HIGH AS 75 PER CENT. MORE DETAILED INFORMATION ABOUT THE AREA AND METHOD OF APPLICATION IS AVAILABLE IN THE WRITE-UP. THE TRANSMITTAL TAPE INCLUDES A LOAD LIBRARY, PROGRAM SOURCE AND OBJECT, AND SAMPLE DATA. 360 GASP III IS SIMILAR TO 7090/94 GASP III (MIGASP SDA NO. 3455) IN DOCUMENTATION AND EFFECT.

PROGRAMMING SYSTEMS - UTILIZES THE SYSTEM/360 OPERATING SYSTEM.

MINIMUM SYSTEM REQUIREMENTS - S/360 WITH 128K CORE STORAGE.
CONTINUED FROM PRIOR COLUMN

SUBMITTAL/REVISION DATE: 03/68

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360D-15.2.014

AN ADJACENT EFFICIENT EXTREME POINT ALGORITHM FOR VECTOR-
MAXIMUM AND INTERVAL WEIGHTED-SUMS LINEAR PROGRAMMING
PROBLEMS

AUTHOR: RALPH E. STEUER

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DESCRIPTION - ADEX IS INTENDED FOR USE IN ANALYZING MULTIPLE
OBJECTIVE LINEAR PROGRAMMING PROBLEMS. ITS PRIMARY
ADVANTAGE IS THAT (RATHER THAN GENERATING JUST ONE SOLUTION)
A LIST OF SEVERAL CANDIDATE SOLUTIONS IS PRODUCED. THIS IS
ACCOMPLISHED BY UTILIZING A VECTOR-MAXIMUM REPRESENTATION
OF LINEAR MULTIPLE OBJECTIVE PROGRAMMING PROBLEMS AND THEN
SOLVING FOR ALL EFFICIENT (I.E., PARETO OPTIMAL) EXTREME
POINTS.

IN ORDER TO CONTROL THE NUMBER OF EFFICIENT EXTREME POINTS
GENERATED, ADEX ALLOWS THE SPECIFICATION OF (RATHER THAN
POINT ESTIMATE WEIGHTS) INTERVAL WEIGHTS FOR EACH OF THE
DIFFERENT OBJECTIVES. THE LOOSER THE INTERVAL CRITERION
WEIGHT BOUNDS, THE GREATER THE NUMBER OF EFFICIENT EXTREME
POINTS GENERATED; THE TIGHTER THE INTERVAL BOUNDS, THE
FEWER EFFICIENT EXTREME POINTS GENERATED.

ADEX CAN ALSO BE APPLIED TO GENERAL PROGRAMMING SITUATIONS
WHERE COMBINATIONS OF THE DIFFERENT DEVIATION VARIABLES HAVE
BEEN STRUCTURED AS DISTINCT OBJECTIVES. IN ADDITION, THE
CODE CAN BE USED TO LOCATE ALL OPTIMAL EXTREME POINTS OF A
SINGLE OBJECTIVE LINEAR PROGRAM.

ADEX IS A SELF-CONTAINED PROCEDURE (MAIN PROGRAM AND ALL
NECESSARY SUBROUTINES) THAT IS WRITTEN IN FORTRAN IV. THE
ALGORITHM EMPLOYS A METHOD OF CHERNIKOVA FOR DETERMINING
WHICH EXTREME POINTS OF THE FEASIBLE REGION ARE ADJACENT TO
A GIVEN EFFICIENT EXTREME POINT. IN COMPARISON WITH AEBASE,
AN ALTERNATIVE PROCEDURE FOR THE SAME PURPOSES, ADEX WILL
RUN FASTER ON PROBLEMS WITH HIGHLY DEGENERATE EXTREME POINTS
BUT ONLY AT THE EXPENSE OF LARGE CORE STORAGE REQUIREMENTS.

THE CODE IS ACCOMPANIED BY A COMPREHENSIVE 117 PAGE
OPERATING MANUAL.

PROGRAMMING LANGUAGE - FORTRAN IV

360D-15.1.011

ZERO-ONE INTEGER PROGRAMMING WITH HEURISTICS

AUTHOR: E. D. HOLCOMB

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NUCLEAR DIVISION
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ELDG. K-1007 MAIL STOP 17
POST OFFICE BOX P
OAK RIDGE, TENNESSEE 37830

DESCRIPTION - THE ZERO-ONE INTEGER PROGRAMMING WITH
HEURISTICS PROGRAM IS DESIGNED TO SOLVE LINEAR PROGRAMMING
PROBLEMS WHOSE VARIABLES ARE RESTRICTED TO VALUES OF ZERO
OR ONE. THE PROGRAM UTILIZES THE WELL KNOWN ADDITIVE
ALGORITHM OF EGON BALAS COMBINED WITH A
GROUP OF USER
SELECTED HEURISTIC TEST OPTIONS DESIGNED TO SPEED SOLUTION
TIME BY TAKING ADVANTAGE OF INDIVIDUAL PROBLEM
CHARACTERISTICS.

PROGRAMMING SYSTEMS - THE PROGRAM DECK CONSISTS OF A MAIN
PROGRAM AND FOUR SUBROUTINES WRITTEN IN FORTRAN PLUS A
THREE CARD OBJECT DECK OF A CLOCK READING FUNCTION.

MINIMUM SYSTEM REQUIREMENTS - THE PROGRAM HAS BEEN TESTED
ON THE IBM 360 MODEL 50 USING OS/360. HOWEVER, THE USE
OF ANY IBM 360 MODEL 40 OR LARGER WITH OS/360 SHOULD NOT
CAUSE DIFFICULTIES.

DOCUMENTATION: 8 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 600 APPROXIMATE.
SUBMITTAL/REVISION DATE: 12/68
360D-15.3.003  
A COMPLEMENTARY PIVOT METHOD FOR SOLVING QUADRATIC PROGRAMMING PROBLEMS  

AUTHOR: A. RAVINDRAN  

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PROFESSOR A. RAVINDRAN  
SCHOOL OF INDUSTRIAL ENGINEERING  
Purdue University  
West Lafayette, Indiana 47907  

DESCRIPTION - THIS PROGRAM CAN SOLVE ANY CONVEX QUADRATIC PROGRAMMING OR LINEAR PROGRAMMING PROBLEM. THE ENTIRE PROGRAM IS WRITTEN IN FORTRAN IV SO THAT IT CAN BE IMPLEMENTED EASILY IN ANY COMPUTING SYSTEM. THE PROGRAM IS BASED ON THE COMPLEMENTARY PIVOT METHOD FOR SOLVING COMPLEMENTARY PROBLEMS. ITS MAIN FIELD OF APPLICATION IS IN MANAGEMENT SCIENCE/OPERATIONS RESEARCH FOR SOLVING NONLINEAR PROGRAMMING OR CONSTRAINED OPTIMIZATION PROBLEMS. THE PROGRAM CONSISTS OF A MAIN PROGRAM AND A NUMBER OF SUBROUTINES WRITTEN IN FORTRAN LANGUAGE. IN ITS PRESENT FORM, IT REQUIRES 70K WORDS IN CDC 6500 MACHINE FOR LOADING AND EXECUTING AND CAN SOLVE QUADRATIC OR LINEAR PROGRAMMING PROBLEMS WHOSE ROWS DO NOT EXCEED 75. THE PROBLEM SIZE CAN BE REDUCED TO ACCOMMODATE CORE AVAILABILITY OF SMALLER MACHINES. LARGER PROBLEMS CAN BE SOLVED BY INCREASING THE SIZE OF THE DIMENSION STATEMENTS.  

PROGRAMMING LANGUAGE - FORTRAN IV  

MINIMUM SYSTEM REQUIREMENTS - SEE ABSTRACT  

DOCUMENTATION: 15 PAGES, NO ADDITIONAL CHARGE.  
CARD COUNT: NOT AVAILABLE ON CARDS.  
SUBMITTAL/REVISION DATE: 8/76  

360D-15.6.003  
COMPUTERIZED RELATIVE ALLOCATION OF FACILITIES TECHNIQUE, CRAFT 4.2  

AUTHOR: G.C. ARMOUR  

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OHE 400  
UNIVERSITY OF SOUTHERN CALIFORNIA  
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DESCRIPTION - COMPUTERIZED RELATIVE ALLOCATION OF FACILITIES TECHNIQUE (CRAFT) ACCEPTS AN INITIAL LAYOUT PATTERN FOR A PHYSICAL FACILITY AND GENERATES IMPROVED LAYOUTS. THE PROGRAM IS GOVERNED BY HEURISTIC RULES WHICH SEQUENTIALLY ALTER LAYOUT PATTERNS WHILE ATTEMPTING TO MINIMIZE VARIABLE MATERIAL HANDLING COSTS. INPUTS ARE MATERIAL HANDLING AND FLOW AND COST DATA, AND AN INITIAL LAYOUT OF DEPARTMENTAL AREAS. CRAFT GENERATES THE VARIABLE COST OF MATERIAL HANDLING FOR THE INITIAL LAYOUT. THE PROGRAM THEN TRIES COMBINATIONS OF TWO DEPARTMENT EXCHANGES, ATTEMPTING TO FIND A LESS COSTLY LAYOUT. MODIFICATIONS CONTINUE UNTIL NO FURTHER COST REDUCTION IS POSSIBLE. CRAFT CAN ALSO BE APPLIED TO ANY MOVEMENT PROBLEM THAT CAN BE REPRESENTED ON A COST-PER-FOOT BASIS. THE FLOW OF PEOPLE IN AN OFFICE LAYOUT IS AN EXAMPLE. CRAFT WAS WRITTEN BY ARMOUR (C.1961), REVISED (CRAFT IV) BY FANNOOAN IN 1967, FURTHER REVISED (CALLED CRAFT 4.1 HERE), AND SUBMITTED TO SHARE IN 1974. CRAFT 4.2 MODIFIES CRAFT 4.1 FOR THE IBM 360/370. FORTRAN IV WITH SOME ASSEMBLER SUBROUTINES; REQUIRES 220K TO COMPIL AND LINK-EDIT AND 160K TO LOAD WITHOUT OVERLAYS.  

PROGRAMMING LANGUAGE - IBM FORTRAN IV, OS ASSEMBLER  

MINIMUM SYSTEM REQUIREMENTS - (SEE ABSTRACT)  

DOCUMENTATION: 112 PAGES, $4.60 ADDITIONAL CHARGE.  
CARD COUNT: 2,550 APPROXIMATE.  
SUBMITTAL/REVISION DATE: 04/76
CRAFT-M - COMPUTERIZED ALLOCATION OF FACILITIES TECHNIQUE (INCLUDING DEPT. MOVE COSTS)

AUTHORS: P. HICKS & T. COWAN

DIRECT TECHNICAL INQUIRIES TO:
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ALBUQUERQUE, NM 87115

DESCRIPTION - CRAFT IS A COMPUTER PROGRAM FOR HEURISTICALLY DETERMINING THE RELATIVE LOCATION OF ACTIVITIES IN A PLANT LAYOUT IN AN ATTEMPT TO MINIMIZE THE MATERIAL HANDLING COSTS OF ALL PRODUCTS FLOWING BETWEEN DEPARTMENTS PER UNIT TIME. INPUT CONSISTS OF AN INITIAL LAYOUT OF ACTIVITY AREAS, AND FLOW AND MATERIAL HANDLING COST DATA. THE PROGRAM CONSIDERS SWITCHING DEPARTMENTS IN AN EFFORT TO REDUCE OVERALL MATERIAL HANDLING COST.

CRAFT-M, AN EXTENSION TO CRAFT, REQUIRES ADDITIONAL INPUTS OF 1) FIXED COST, AND VARIABLE COST PER UNIT DISTANCE, TO MOVE EACH ACTIVITY AREA, 2) INTEREST RATE AND NUMBER OF INTEREST PERIODS FOR PRORATING MOVE COSTS OVER THE LIFE OF THE REARRANGEMENT, AND 3) EXPECTED MATERIAL HANDLING COST REDUCTION MADE POSSIBLE BY AN ACTIVITY AREA MOVE. IN CRAFT-M, DEPARTMENTS ARE SWITCHED IF THE RESULTING MATERIAL HANDLING COST IMPROVEMENT MORE THAN COVERS THE DEPARTMENTAL MOVE COSTS OVER THE LIFE OF THE ARRANGEMENT.

PROGRAMMING LANGUAGE - IBM FORTRAN IV, OS ASSEMBLER

MINIMUM SYSTEM REQUIREMENTS - NONE STATED

DOCUMENTATION: 18 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 2,200 APPROXIMATE.
SUBMITTAL/REVISION DATE: 6/76

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UCARDS: UNION CARBIDE AUTOMATIC ROUTINE AND DESIGN FOR PRINTED CIRCUIT BOARDS

AUTHOR: J. R. JAMESON

DIRECT TECHNICAL INQUIRIES TO:
B. L. CRASS
UNION CARBIDE CORPORATION
NUCLEAR DIVISION
P. O. BOX D, K1007, STP 53
OAK RIDGE, TENNESSEE 37830

DESCRIPTION - THE 5/360 UCARDS PROGRAM IS AN AUTOMATED DESIGN SYSTEM FOR PRODUCING COMPONENT LAYOUT, CONDUCTOR LAYOUT AND OTHER AIDS FOR THE FABRICATION OF PRINTED CIRCUIT BOARDS.

PROGRAMMING SYSTEMS - WRITTEN PRIMARILY IN FORTRAN IV AND IS PRESENTLY IMPLEMENTED ON AN IBM 360/50-65 INTERCOUPLED SYSTEM.

MINIMUM SYSTEM REQUIREMENTS - ALL OF THE PROGRAM WAS COMPILED AND CHECKED OUT USING VERSION 15/16 AND REQUIRES APPROXIMATELY 280,000 BYTES OF CORE STORAGE, TWO 9-CHANNEL AND TWO 7-CHANNEL TAPE DRIVES. OF COURSE, A CARD READER AND PRINTER ARE REQUIRED.

DOCUMENTATION: 8 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 16,050 APPROXIMATE.
SUBMITTAL/REVISION DATE: 06/69

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PROGRAMS FOR CALCULATION OF MICROWAVE INTERFERENCE

AUTHOR: M. J. PAGONES

DIRECT TECHNICAL INQUIRIES TO:
MICHAEL J. PAGONES
ROOM 3C-607
BELL LABORATORIES
HOLMDEL, NJ 07733

DESCRIPTION - THE PROGRAMS FMSPREV, ANINTP, AND AREINTP ARE INTENDED TO BE USED FOR TERRESTRIAL MICROWAVE RADIO INTERFERENCE COORDINATION.
CONTINUED FROM PRIOR COLUMN

THE FMSPREY PROGRAM CALCULATES THE SPECTRAL DENSITY OF AN FDM-FM SIGNAL, AND ANINTP CALCULATES THE INTERFERENCE BETWEEN TWO ANALOG, FDM-FM SIGNALS, AND ARBITP CALCULATES THE INTERFERENCE BETWEEN ONE ANALOG FDM-FM SIGNAL AND ANOTHER SIGNAL OF ARBITRARY SPECTRAL DENSITY.

THE DOCUMENTATION INCLUDES USER'S MANUALS AND LIMITATIONS OF THE SOFTWARE.

PROGRAMMING LANGUAGE - PL/I (F).

MINIMUM SYSTEM REQUIREMENTS - OS/360

DOCUMENTATION: 33 PAGES, $0.65 ADDITIONAL CHARGE.
CARD COUNT: 2,053.
SUBMITTAL/REVISION DATE: 4/75.

360D-16.0.003
FAA INTEGRATED NOISE MODEL PROGRAM PACKAGE (VERSION 2)

AUTHOR: DR. PETER A. MANSBACH

DIRECT TECHNICAL INQUIRIES TO:
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THE MITRE CORPORATION
METREK DIVISION
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MCLEAN, VIRGINIA 22101

DESCRIPTION - THE FAA AIRCRAFT NOISE MODEL PROGRAM PACKAGE INMPROG PROVIDES THE CAPABILITY TO COMPUTE AIRCRAFT NOISE INDICES AS REQUIRED BY THE INTEGRATED NOISE MODEL. TABULAR OUTPUT INCLUDES LDN, LEQ, AND DURATIONS OF EXPOSURE ABOVE VARIOUS DB(A) THRESHOLDS. PLOTTER OUTPUT IS ALSO GENERATED. THE PACKAGE INCLUDES ITS OWN DATA BASE.

THE PROGRAMS ARE WRITTEN IN PL/I, AND REQUIRE A PREPROCESSOR AND REGIONAL (1) I/O CAPABILITY. 5 MAIN PROGRAMS, 22 SUB-PROGRAMS, AND 5 MACRO FILES COMPOSE THE PROGRAM. THE REQUIRED STANDARD NOISE LIBRARY AND ACOUSTIC DATA LIBRARY ARE ALSO SUPPLIED; HOWEVER, THESE ARE IN IBM 360/370 MACHINE READABLE DATA FORMS.

THE PROGRAMS WERE DEVELOPED ON AN IBM 370/145 UNDER CMS, USING A VIRTUAL MACHINE SIZE OF 512K. THEY ARE EXPECTED TO RUN ON ANY IBM 360 OR 370, EITHER CMS OR OS, WITH 400K OR MORE OF MEMORY, REAL OR VIRTUAL. THE PLOTTER PROGRAM

CONTINUED FROM PRIOR COLUMN

REQUIRES THE BASIC CALCOPP SUBROUTES WITH FORTRAN LINKAGES. USERS SHOULD OBTAIN THE "FAA INTEGRATED NOISE MODEL-USER'S GUIDE", FAA-EQ-76-2, FROM THE NATIONAL TECHNICAL INFORMATION SERVICE (NTIS), SPRINGFIELD, VA 22151. A PROGRAMMER'S GUIDE AND DATA BASE DESCRIPTION ARE BEING PREPARED.

PROGRAMMING LANGUAGE - PL/I, CALCOMP PLOTTER SOFTWARE

MINIMUM SYSTEM REQUIREMENTS - CMS/OS/IBM/360/370, DIRECT ACCESS STORAGE AND AT LEAST 400K BYTES OF STORAGE

DOCUMENTATION: 20 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: NOT AVAILABLE ON CARDS.
SUBMITTAL/REVISION DATE: 10/76

360D-16.1.001
ROCKET - FORTRAN 4 VERSION

AUTHORS: B. BOEHM J. RIEBER
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DESCRIPTION - ROCKET IV IS A FORTRAN IV PROGRAM WHICH MATHEMATICALLY SIMULATES THE FLIGHT OF AEROSPACE VEHICLES BY NUMERICAL INTEGRATION OF THEIR EQUATIONS OF MOTION. A SPECIAL PURPOSE INPUT FORM ENABLES THE USER TO SPECIFY THE CHARACTERISTICS OF HIS VEHICLE AND ITS FLIGHT PLAN, BOTH OF WHICH CAN VARY THROUGH A WIDE RANGE OF CHOICES, WITH COMPARATIVELY LITTLE EFFORT.

PROGRAMMING SYSTEMS - WRITTEN IN FORTRAN IV.

MINIMUM SYSTEM REQUIREMENTS - THE PROGRAM REQUIRES THE USE OF A FORTRAN COMPILER, READS INPUT FROM TAPE 5, AND WRITES OUTPUT ON TAPE 6. IT OCCUPIES ABOUT 25,000 WORDS OF CORE.

DOCUMENTATION: 18 PAGES, NO ADDITIONAL CHARGE.
NOT AVAILABLE ON CARDS.
SUBMITTAL/REVISION DATE: 01/67
CONTINUED FROM PRIOR COLUMN

REQUIRES A 2400 FT. TAPE FOR DISTRIBUTION.

360D-16.3.002
PULSE TESTING VIA THE FAST FOURIER TRANSFORM

AUTHORS: CARLOS RAY DOLLAR CECIL L. SMITH
PAUL W. MURRILL

DIRECT TECHNICAL INQUIRIES TO:
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PROCESS COMPUTER ENGINEERING
DOW CHEMICAL COMPANY
FREEPORT, TEXAS 77541

DESCRIPTION - SUBROUTINE REFFT ACCOMPLISHES A FAST, ACCURATE
TRANSFORMATION OF TIME DOMAIN PULSE RESPONSE DATA TO
FREQUENCY RESPONSE DATA USING THE REAL-VALUED FAST FOURIER
TRANSFORM. THE SUBROUTINE IS WRITTEN IN FORTRAN IV AND
HAS BEEN COMPILED AND TESTED ON A 7040, A S/360 MODEL 50,
AND A S/360 MODEL 65. GIVEN TIME DOMAIN INPUT AND OUTPUT
PULSE DATA THE SUBROUTINE WILL CALCULATE AND PRINT
MAGNITUDES, PHASE ANGLES AND ASSOCIATED FREQUENCIES.

PROGRAMMING SYSTEMS - WRITTEN IN FORTRAN IV.

MINIMUM SYSTEM REQUIREMENTS - A MINIMUM OF 16K OF CORE
STORAGE IS REQUIRED AND WILL RUN ON A S/360 MODEL 30.

DOCUMENTATION: 10 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 250 APPROXIMATE.
SUBMITTAL/REVISION DATE: 10/69

360D-17.1.001
QUANTITATIVE ANALYSIS WITH ELECTRON MICROPROBE ANALYZER

AUTHOR: S. S. SO

DIRECT TECHNICAL INQUIRIES TO:
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IBM CORPORATION K12/282
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SAN JOSE, CA 95193

DESCRIPTION - A DESCRIPTION OF TWO FORTRAN IV COMPUTER
PROGRAMS IS PRESENTED TO SIMPLIFY QUANTITATIVE AND
SEMIQUANTITATIVE ANALYSIS WITH THE ELECTRON MICROPROBE
ANALYZER. THE FIRST PROGRAM, EPMP1, DETERMINES THE WEIGHT
FRACTION OF EACH ELEMENT IN A SPECIMEN FROM THE
CHARACTERISTIC X-RAY INTENSITY MEASUREMENTS OF THE SPECIMEN
AND THE STANDARDS. THE SECOND PROGRAM, EPMP2, CALCULATES
THE RELATIVE CHARACTERISTIC X-RAY INTENSITIES OF ALL THE
ELEMENTS IN A SPECIMEN BY ASSUMING THE COMPOSITION OF THE
SPECIMEN TO BE KNOWN. THE CORRECTION PROCEDURE INCLUDES
DEAD TIME CORRECTION, ONE OF TWO BACKGROUND CORRECTIONS
(NEITHER CONSTANT BACKGROUND OR BACKGROUND DEPENDING ON
COMPOSITION), PHILIBERTS ABSORPTION CORRECTION MODIFIED
BY DUNCUMB AND SHIELDS, ONE OF THREE FLUORESCENCE
CORRECTIONS (EITHER BIRKS, CASTAINGS, OR REEDS), AND A
COMPOUND STANDARD CORRECTION. THE EFFECTS OF THE ABSORPTION
AND THE FLUORESCENCE OF EACH ELEMENT IN THE SPECIMEN ARE
EASILY SEEN FROM THE OUTPUT RESULTS. VERSATILITY,
EFFICIENCY, AND EASE OF OPERATION ARE EMPHASIZED IN THE
PROGRAMS. PROGRAM LISTINGS, INPUT DATA FORMAT, AND VARIOUS
EXAMPLES SHOWING THE USAGE OF THE PROGRAMS HAVE BEEN
INCLUDED IN THE APPENDICES.

PROGRAMMING SYSTEMS - PROGRAMMING LANGUAGE - FORTRAN IV.
OPERATING SYSTEM REQUIRED - OS/360 WITH FORTRAN IV COMPILER
(LEVEL H).

MINIMUM SYSTEM REQUIREMENTS - THOSE REQUIRED BY OS/360,
THE FORTRAN IV COMPILER, 36K CORE STORAGE.

DOCUMENTATION: 41 PAGES, $1.05 ADDITIONAL CHARGE.
CARD COUNT: 800 APPROXIMATE.
SUBMITTAL/REVISION DATE: 08/69
CONTINUED FROM PRIOR COLUMN

SUBSETS OF EVENTS ACCORDING TO CRITERIA DEFINED ON CONTROL-CARDS, AND TO ALLOW THE USER TO ADD ROUTINES FOR COMPUTING PROGRAM WAS ORIGINALLY WRITTEN AT BERKELEY, BUT THE PRESENT VERSION WAS COMPLETELY REWRITTEN AT CERN IN 1965-1966. (SUMX 466, VERSION 5.25).

PROGRAMMING SYSTEMS - WRITTEN IN FORTRAN IV, LEVEL H FOR S/360.

MINIMUM SYSTEM REQUIREMENTS - 256K, WITHOUT OVERLAYS, THREE TAPE DRIVES, RECOMMENDED MINIMUM OF THREE DISK DRIVES.

DOCUMENTATION: 76 PAGES, $2.80 ADDITIONAL CHARGE.

SUBMITTAL/REVISION DATE: 07/67

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360D-17.4.003
TRANSIENT ONE-DIMENSIONAL AND SIMULTANEOUS SOLUTE AND WATER FLOW IN SOILS

AUTHOR: H. M. SELIM AND R. S. MANSELL

DIRECT TECHNICAL INQUIRIES TO:
H. M. SELIM OR R. S. MANSELL
DEPARTMENT OF SOIL SCIENCE
2169 MCCARTY HALL
UNIVERSITY OF FLORIDA
GAINESVILLE, FLORIDA 32611

DESCRIPTION - A COMPUTER PROGRAM HAS BEEN DEVELOPED FOR THE PROBLEM OF SOLUTE AND WATER MOVEMENT IN UNSATURATED SOILS OR POROUS MEDIA UNDER TRANSIENT FLOW CONDITIONS. THE TWO NON-LINEAR PARTIAL DIFFERENTIAL EQUATIONS GOVERNING THE SOLUTE AND WATER FLOW ARE SOLVED SIMULTANEOUSLY FOR THE WATER CONTENT AND SOLUTE CONCENTRATION AT ANY SPECIFIED TIME AND LOCATION AS DESIRED. THE INITIAL CONDITIONS USED ARE UNIFORM SALT AND WATER CONTENT DISTRIBUTIONS AT TIME T=0. THE BOUNDARY CONDITIONS AT THE SOIL SURFACE ARE WATER FLUX AND CONSTANT SALT CONCENTRATION CONDITIONS. THE METHOD OF SOLUTION IS A NUMERICAL ONE WHICH UTILIZES THE EXPLICIT-IMPLICIT FINITE DIFFERENCE TECHNIQUE.

THE COMPUTER PROGRAM IS WRITTEN IN FORTRAN LANGUAGE AND CONSISTS OF A SOURCE PROGRAM, ELEVEN SUBPROGRAMS, AND AN INPUT DATA SECTION. AN IMPORTANT FEATURE OF THE PROGRAM IS THAT INCREMENTAL DISTANCE AND TIME STEPS ARE ADJUSTED AUTOMATICALLY TO SATISFY STABILITY AND CONVERGENCE CRITERIA FOR THE WATER AND SOLUTE FINITE DIFFERENCE CRITERIA. A SECOND FEATURE IS THAT THE NUMBER OF NODEAL POINTS ARE AUTOMATICALLY CALCULATED FROM THE LENGTH OF THE FLOW REGION. A THIRD FEATURE OF THE PROGRAM IS THAT OUTPUT DATA OF WATER CONTENT, WATER FLUX, SOLUTE CONCENTRATION, AND SOLUTE FLUX IN THE FLOW REGION ARE PROVIDED AT SPECIFIED TIMES AS DESIRED.

PROGRAMMING LANGUAGE - FORTRAN IV

MINIMUM SYSTEM REQUIREMENTS - OS/360, 128K PROGRAM

DOCUMENTATION: 50 PAGES, $1.50 ADDITIONAL CHARGE.

CARD COUNT: 620 CARDS APPROXIMATE.

SUBMITTAL/REVISION DATE: 9/74.

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360D-17.4.004
CAMIVA - CARTOGRAPHIC AUTOMATIC MAPPING SYSTEM

AUTHOR: WILLIAM G. SCHENK

DIRECT TECHNICAL INQUIRIES TO:
WILLIAM G. SCHENK
APTAC/ados, BLDG. 989
PATRICK AFB, FLORIDA 32925

DESCRIPTION - CAMIVA IS AN IBM SYSTEM 360 FORTRAN PROGRAM THAT PERFORMS A WIDE VARIETY OF CARTOGRAPHIC PLOTTING TASKS. IT WILL CONNECT POINTS WITH STRAIGHT LINES OR GREAT CIRCLES AND DRAW LINE GRIDS, RANGE RINGS, ELLIPSES, CONES, AZIMUTHS, AND A HOST OF OTHER MAP FEATURES. INCLUDED ALSO ARE A SELECTION OF 17 MAP PROJECTIONS THAT CAN BE USED IN CONJUNCTION WITH WORLD DATA BANK I. THE STRUCTURE OF CAM IS MODULAR TO PERMIT THE EASY ADDITION OF NEW FEATURES OR SUBROUTINES TO READ DATA IN A DIFFERENT FORMAT.

PROGRAMMING LANGUAGE - FORTRAN AND ASSEMBLER

MINIMUM SYSTEM REQUIREMENTS - CS/360 AND PLOTTER

DOCUMENTATION: 6 PAGES, NO ADDITIONAL CHARGE.

CARD COUNT: NOT AVAILABLE ON CARDS.

SUBMITTAL/REVISION DATE: 6/76

REQUIRES 1200 FT. TAPE FOR DISTRIBUTION.
COFAD: COMPUTERIZED FACILITIES DESIGN
AUTHOR: J. A. TOMPKINS
DIRECT INQUIRIES TO:
J. A. TOMPKINS
BOX 5511
NORTH CAROLINA STATE UNIVERSITY
RALEIGH, NORTH CAROLINA 27606

DESCRIPTION - COFAD II (COMPUTERIZED FACILITIES DESIGN) IS A COMPUTER PROGRAM DESIGNED TO DETERMINE SUBOPTIMAL LAYOUT AND HANDLING SYSTEMS FOR PHYSICAL FACILITIES. THE PROGRAM IS GOVERNED BY A SET OF HEURISTIC RULES WHICH ITERATIVELY SELECTS A LAYOUT AND THEN A HANDLING SYSTEM SO AS TO APPROACH THE MINIMAL MATERIALS HANDLING SYSTEM COST. COFAD II IMPROVES LAYOUTS IN A MANNER SIMILAR TO CRAFT EUT THEN DIFFERS SIGNIFICANTLY IN THAT REALISTIC MATERIALS HANDLING EQUIPMENT COSTS ARE INCLUDED SO AS TO ALLOW THE JOINT DETERMINATION OF THE LAYOUT AND HANDLING SYSTEM. INPUT INTO COFAD II INCLUDES THE FLOW DATA WITHIN THE FACILITY, THE COSTS OF ALTERNATIVE MATERIALS HANDLING EQUIPMENT TYPES AND AN INITIAL LAYOUT. COFAD II DIFFERS FROM THE ORIGINAL COFAD IN FLEXIBILITY, EASE OF ALTERING THE MODEL FOR VARIOUS PROBLEMS AND OUTPUT FORMAT. COFAD II IS WRITTEN IN FORTRAN IV AND CONTAINS APPROXIMATELY 3,300 CARDS. STORAGE OF 500K IS REQUIRED TO IMPLEMENT COFAD II.

PROGRAMMING LANGUAGE - FORTRAN IV
MINIMUM SYSTEM REQUIREMENTS - OS/FORTRAN IV

DOCUMENTATION: 10 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 3,300 APPROXIMATE.
SUBMITTAL/REVISION DATE: 04/76

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CORELAP: COMPUTERIZED RELATIONSHIP LAYOUT PLANNING
AUTHOR: J. M. MOORE AND J. A. TOMPKINS
DIRECT INQUIRIES TO:
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DESCRIPTION - CORELAP 9.3 (COMPUTERIZED RELATIONSHIP LAYOUT PLANNING) IS A COMPUTER PROGRAM DESIGNED TO GENERATE A LAYOUT FOR A FACILITY BASED UPON THE RELATIONSHIPS AMONG THE DEPARTMENTS WITHIN THE LAYOUT. CORELAP 9.3 CONSISTS OF A SELECTION ROUTINE AND A PLACEMENT ROUTINE. THE DEPARTMENTS ARE SELECTED AND PLACED IN AN EFFORT TO MAXIMIZE THE RELATIONSHIPS AMONG DEPARTMENTS AS INDICATED ON THE ORIGINALLY INPUT RELATIONSHIP CHART. CORELAP 9.3 DIFFERS FROM EARLIER VERSIONS OF CORELAP IN THAT A PLOTTER MAY BE UTILIZED TO PLOT THE FINAL LAYOUT. CORELAP 9.3 IS WRITTEN IN FORTRAN IV AND REQUIRES 200K OF STORAGE TO BE IMPLEMENTED.

PROGRAMMING LANGUAGE - FORTRAN IV
MINIMUM SYSTEM REQUIREMENTS - OS/FORTRAN IV

DOCUMENTATION: 7 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 1,900 APPROXIMATE
SUBMITTAL/REVISION DATE: 04/76

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PLANET: PLANT LAYOUT ANALYSIS AND EVALUATION TECHNIQUE
AUTHOR: M. DEISENROTH AND J. A. TOMPKINS
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DOCUMENTATION: 7 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 1,900 APPROXIMATE
SUBMITTAL/REVISION DATE: 04/76
CONTINUED FROM PRIOR COLUMN

DESCRIPTION - PLANET (PLANT LAYOUT ANALYSIS AND EVALUATION TECHNIQUE) IS A COMPUTER PROGRAM DESIGNED TO DETERMINE SUBOPTIMAL LAYOUT PATTERNS FOR PHYSICAL FACILITIES. PLANET IS A CONSTRUCTION ROUTINE WHICH CONSISTS OF THREE SELECTION ROUTINES AND A PLACEMENT ROUTINE. THE SELECTION ROUTINES DETERMINE THE ORDER IN WHICH DEPARTMENTS ARE TO ENTER THE LAYOUT, AND THE PLACEMENT ROUTINE DETERMINES WHERE TO PLACE THE DEPARTMENTS AS TO MINIMIZE HANDLING COSTS. THE INPUT OF FLOW DATA INTO PLANET MAY BE DONE IN ANY ONE OF THE FOLLOWING WAYS: (1) EXTENDED PARTS MATRIX, (2) FROM-TO CHART, (3) PENALTY MATRIX. PLANET IS WRITTEN IN FORTRAN IV AND CONTAINS APPROXIMATELY 1,000 CARDS. STORAGE OF 160K IS REQUIRED TO IMPLEMENT PLANET.

PROGRAMMING LANGUAGE - FORTRAN IV

MINIMUM SYSTEM REQUIREMENTS - OS/FORTRAN

DOCUMENTATION: 10 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 1,000 APPROXIMATE.
SUBMITTAL/REVISION DATE: 04/76

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CONTINUED FROM PRIOR COLUMN

DESCRIPTION - ALDEP (AUTOMATED LAYOUT DESIGN PROGRAM) IS A COMPUTER PROGRAM DESIGNED TO GENERATE AND EVALUATE LAYOUTS BASED UPON THE RELATIONSHIPS AMONG DEPARTMENTS WITHIN THE LAYOUT. ALDEP CONSTRUCTS SEVERAL LAYOUTS UTILIZING A RANDOM NUMBER GENERATOR AND A HEURISTIC SELECTION PROCEDURE. THE LAYOUTS RESULTING FROM ALDEP ARE EVALUATED AND ASSIGNED A RATING DEPENDING UPON THE ADHERENCE OF THE LAYOUT TO THE ORIGINALLY INPUT RELATIONSHIP CHART. ALDEP IS THE ONLY WIDELY USED ROUTINE WHICH ALLOWS THE INCLUSION OF MORE THAN SINGLE FLOOR FACILITIES. THE INPUT INTO ALDEP IS THE DEPARTMENTAL AREAS AND RELATIONSHIPS. ALDEP IS WRITTEN IN FORTRAN IV AND CONTAINS APPROXIMATELY 700 CARDS. STORAGE OF 200K IS REQUIRED TO IMPLEMENT ALDEP.

PROGRAMMING LANGUAGE - FORTRAN IV

MINIMUM SYSTEM REQUIREMENTS - CS/FORTRAN IV

DOCUMENTATION: 9 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 700 APPROXIMATE.
SUBMITTAL/REVISION DATE: 04/76

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360D-23.1.003
TWO-STAGE, TWO-DIMENSIONAL TRIM PROGRAM II

AUTHOR: CAROL E. SHANESY

DIRECT TECHNICAL INQUIRIES TO:
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NEW YORK, NY 10005

DESCRIPTION - TWO-STAGE, TWO-DIMENSIONAL TRIM PROGRAM PROVIDES A LINEAR PROGRAMMING SOLUTION TO THE TWO-STAGE TWO DIMENSIONAL TRIM OR CUTTING STOCK PROBLEM. THIS PROBLEM CAN BE DESCRIBED BRIEFLY AS FOLLOWS. WE HAVE A SUPPLY OF MATERIAL WHICH IS STOCKED (OR PRODUCED) IN ONE OR MORE FIXED RECTANGULAR SIZES, EACH SIZE HAVING A FIXED COST PER UNIT ASSOCIATED WITH IT. WE ALSO HAVE A LIST OF SMALLER RECTANGLE SIZES TOGETHER WITH THE NUMBERS DESIRED OF EACH SIZE, WHICH ARE TO BE PRODUCED BY CUTTING UP STOCK-SIZE RECTANGLES. IF ANY OF THESE RECTANGLE SIZES (W X L) MAY BE CUT EITHER W OR L OR L X W, THE PROGRAM WILL TAKE ADVANTAGE OF THIS FREEDOM. THE STOCK-SIZE RECTANGLES ARE CUT IN TWO STAGES -- FIRST THE RECTANGLE IS SLIT INTO STRIPS WITH STRAIGHT CUTS PARALLEL TO THE LENGTH EDGE, AND THEN EACH STRIP IS CUT INDIVIDUALLY IN THE PERPENDICULAR DIRECTION. THE CHEAPEST WAY OF CUTTING UP STOCK IS TO FILL THE ORDERS MUST BE DETERMINED. THE PROGRAM WILL HANDLE UP TO 10 STOCK SIZES AND 50 ORDER SIZES, AS PRESENTLY COMPILED. FOR THESE DIMENSIONS, THE PROGRAM REQUIRES ABOUT 100,000 BYTES OF MEMORY FOR EXECUTION.

PROGRAMMING SYSTEMS - IT IS AN INDEPENDENT ROUTINE, CODED ENTIRELY IN FORTRAN.
CONTINUED FROM PRIOR COLUMN

MINIMUM SYSTEM REQUIREMENTS - THERE ARE NO OTHER SPECIAL MACHINE REQUIREMENTS BEYOND THOSE FOR OS/360.

DOCUMENTATION: 37 PAGES, $.85 ADDITIONAL CHARGE.
CARD COUNT: 550 APPROXIMATE.
SUBMITTAL/REVISION DATE: 03/69

370D-23.4.005
370 APT-AC (PTF3), APTLFT IMPLEMENTATION
AUTHOR: ROBERT J. HAUGEN
DIRECT TECHNICAL INQUIRIES TO:
TECHNICAL ASSISTANCE CURRENTLY NOT AVAILABLE.

DESCRIPTION - THIS PACKAGE PROVIDES THE NECESSARY UPDATES, NEW PROGRAMS, OVERLAYS, TEST PROGRAMS, AND JCL TO IMPLEMENT AND TEST SYSTEM/370 APT-AC (PTF3) WITH APTLFT. ALL PREPARATION WAS DONE ON A S/370 MODEL 168 WITH 3330 DISK AND USING OS-MVT RELEASE 21.7.

PROGRAMMING LANGUAGE - FORTRAN IV AND ASSEMBLY LANGUAGE.

MINIMUM SYSTEM REQUIREMENTS - OS/360, 3330, FORTRAN IV, ASSEMBLER.

DOCUMENTATION: 78 PAGES, $2.90 ADDITIONAL CHARGE.
CARD COUNT: NOT AVAILABLE ON CARDS.
SUBMITTAL/REVISION DATE: 11/74.

360D-23.4.004
360 APT - V4M3/SSX3A/SSIP
AUTHOR: QUINT RYGH
DIRECT TECHNICAL INQUIRIES TO: T. J. CASEY, CI-648 (2-56) DOUGLAS AIRCRAFT CO. 3855 LAKewood BLVD. LONG BEACH, CA 90846

DESCRIPTION - THIS PACKAGE EFFECTS A MERGER BETWEEN IBM'S 360 APT (V4M3) AND CAM-I'S SCULPTURED SURFACE (SSX3A) BY MEANS OF A SCULPTURED SURFACE INTERIM PROCESSOR (SSIP). THE PURPOSE OF THE MERGER WAS TO FACILITATE AND THEREBY TO ENCOURAGE WITHIN THE NC COMMUNITY A MORE EXTENSIVE EFFORT IN THE AREA OF SCULPTURED SURFACE RESEARCH AND DEVELOPMENT. THE CODING LANGUAGE IS FORTRAN IV EXCEPT FOR A MODICUM OF BASIC ASSEMBLY LANGUAGE IN V4M3. THE PACKAGE WAS PREPARED ON A 165/3330 UNDER CONTROL OF OS/MVT 21.7 BUT SHOULD BE EXECUTABLE UNDER ANY VERSION OF OS OR OS/VS AND ON ANY 360/370 HARDWARE CapABLE OF MEETING THE 310K CORE REQUIREMENT. THE APT PROCESSOR, OF WHICH THIS PACKAGE IS AN OFFSHOOT, IS COMPRISED OF FIVE SECTIONS, 0 THRU IV. THE PACKAGE, AS AVAILABLE, CONSISTS OF A LOAD MODULE FOR EACH OF THESE SECTIONS, A SOURCE MODULE FOR SECTION I, AN OVERLAY AND NINE TEST CASES, WHICH MAY BE USED TO VERIFY IMPLEMENTATION AND DEMONSTRATE CAPABILITIES. ATTENDANT DOCUMENTATION IS FOR THE USE OF THE APT PART PROGRAMMER AND SYSTEM IMPLEMENTOR.

PROGRAMMING LANGUAGE - FORTRAN IV, ASSEMBLER.

MINIMUM SYSTEM REQUIREMENTS - OS/360 OR OS/VS

DOCUMENTATION: 112 PAGES, $4.60 ADDITIONAL CHARGE.
CARD COUNT: NOT AVAILABLE ON CARDS.
SUBMITTAL/REVISION DATE: 03/69.
CONTINUED FROM PRIOR COLUMN

GENERATED EXACTLY IN HEXADECIMAL ARITHMETIC AND ROUNDED TO DOUBLE PRECISION LENGTH. THE ACCURACY OF THESE HEXADECIMAL TABULAR VALUES IS THEREFORE THE MAXIMUM POSSIBLE IN A DOUBLE PRECISION WORD, AND IS NOT AFFECTED BY ANY INACCURACY IN THE CONVERSION OF DECIMAL CONSTANTS TO HEXADECIMAL.

PROGRAMMING SYSTEMS - THIS SUBROUTINE IS WRITTEN IN FORTRAN IV.

MINIMUM SYSTEM REQUIREMENTS - ANY S/360 WITH FORTRAN IV (G OR H LEVEL), AND USES APPROXIMATELY 1,000 BYTES OF CORE AT OBJECT TIME.

DOCUMENTATION: 8 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 39 APPROXIMATE.
SUBMITTAL/REVISION DATE: 03/68

360D-40.4.003
MULTIPLE PRECISION FLOATING-POINT ARITHMETIC PACKAGE

AUTHOR: J. E. EHRMAN

DIRECT TECHNICAL INQUIRIES TO:
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STANFORD CENTER FOR INFORMATION PROCESSING
SLAC - EIN 97
P.O. BOX 4349
STANFORD, CALIFORNIA 94305

DESCRIPTION - THESE ROUTINES PROVIDE THE SYSTEM/360 PROGRAMMER WITH A SIMPLE MEANS FOR PERFORMING FLOATING-POINT ARITHMETIC TO ANY DESIRED PRECISION, AND IN A FORMAT COMPATIBLE WITH STANDARD SYSTEM/360 FLOATING-POINT FORMAT.

PROGRAMMING SYSTEMS - THE ROUTINES ARE WRITTEN IN ASSEMBLER LANGUAGE, AND ARE DESIGNED PRIMARILY FOR USE IN A FORTRAN ENVIRONMENT. HOWEVER, THEY MAY BE CALLED BY ANY PROGRAM WHICH OBSERVES STANDARD OS/360 PARAMETER-PASSING AND LINKAGE CONVENTIONS.

MINIMUM SYSTEM REQUIREMENTS - SAME AS THOSE REQUIRED TO RUN OS/360.

DOCUMENTATION: 24 PAGES, $.20 ADDITIONAL CHARGE.
CARD COUNT: 3,250 APPROXIMATE.
SUBMITTAL/REVISION DATE: 04/69

360D-40.4.004
A MULTIPLE PRECISION PACKAGE FOR THE IBM OS 360/370 SYSTEMS

AUTHOR: DR. C. E. REID, UNIVERSITY OF FLORIDA

DIRECT TECHNICAL INQUIRIES TO:
H. D. KNOPF
COMPUTER BUILDING
THE PENNSYLVANIA STATE UNIVERSITY
UNIVERSITY PARK, PA 16802

DESCRIPTION - THIS SET OF PROGRAMS ENABLES MULTIPLE PRECISION ARITHMETIC TO BE PERFORMED IN A FORTRAN ENVIRONMENT ON IBM 360 OR 370 HARDWARE. THE PRECISION IS VARIABLE AND MAY BE SET BY THE PROGRAM TO CORRESPOND TO AS
CONTINUED FROM PRIOR COLUMN

HIGH AS 604 DECIMAL DIGITS; MAGNITUDE RANGE IS 4.13 E-78916 TO 6.29 E+78910. THE STANDARD ARITHMETIC OPERATIONS ARE SUPPORTED AS WELL AS MULTIPLE PRECISION FUNCTIONS CORRESPONDING TO ABS, SQRT, EXP, ALOG, SIN, AND COS. INPUT/OUTPUT CONVERSION ROUTINES ARE ALSO PROVIDED AS WELL AS A TRACING FACILITY TO ENABLE PROGRAM FLOW AND RESULTS TO BE PRINTED AS COMPUTATIONS PROCEED. THE PACKAGE WAS DEVELOPED AND TESTED WITH USE OF THE IBM OS 360 FORTRAN (G) LEVEL COMPILER. THE 26 PAGE PROGRAM WRITE-UP IS UPPER/LOWER CASE MACHINE READABLE.

PROGRAMMING LANGUAGE - OS/360 ASSEMBLY AND FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - A SYSTEM/360 WITH AT LEAST 128K CORE STORAGE.

DOCUMENTATION: 40 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 1,100 APPROXIMATE.
SUBMITTAL/REVISION DATE: 12/68

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360D-43.2.001

MIDAS - AN ADAPTATION OF THE CONVAIR PRE-COMPILING MIDAS-III DIGITAL ANALOG SIMULATION SYSTEM TO OS/360 WITH CALCOMP PLOTTING

AUTHORS: G. H. BURGIN W. E. LOPER

DIRECT TECHNICAL INQUIRIES TO:
W. E. LOPER
NAVAL ELECTRONICS LABORATORY CENTER
ADVANCED SOFTWARE TECHNOLOGY DIVISION
CODE 5200
SAN DIEGO, CA 92152

DESCRIPTION - THIS MIDAS PROGRAM AND REPORT ARE ADAPTATIONS OF A PROGRAM (MIDAS-III) AND REPORT (GDC-DDE66-022) BY G. H. BURGIN OF GENERAL DYNAMICS, CONVAIR DIVISION, SAN DIEGO, CALIFORNIA. THE CONVAIR VERSION WAS A CONTINUATION OF DEVELOPMENTS IN SIMULATION OF ANALOG COMPUTER ORIENTED DESCRIPTIONS OF SYSTEMS OF DIFFERENTIAL EQUATIONS BEGGINING WITH MIDAS ORIGINALLY PRODUCED BY WRIGHT-PATTERSON AIR FORCE BASE AND MIDAS-II BY NORTH AMERICAN AVIATION. THE CONVAIR VERSION WAS A CONTRIBUTION TO THE 7094 LITERATURE IN THAT IT WAS A PRE-COMPILER IN CONTRAST TO THE PREVIOUS INTERPRETERS WHICH WERE AN ORDER OF MAGNITUDE SLOWER IN EXECUTION. THIS PROGRAM AND ITS SUPPORTING DOCUMENTATION MODIFY ONLY THAT WHICH IS NECESSARY TO ACCOMMODATE SPECIFIC DIFFERENCES IN COMPUTERS, OPERATING SYSTEMS, AND PERIPHERAL EQUIPMENT DIFFERENCES BETWEEN NWCCL AND CONVAIR.

PROGRAMMING SYSTEMS - RUNS UNDER OPERATING SYSTEM/360.

MINIMUM SYSTEM REQUIREMENTS - S/360 MODEL 50, OPERATING SYSTEM CONFIGURATION.

DOCUMENTATION: 58 PAGES, $1.90 ADDITIONAL CHARGE.
CARD COUNT: 6,650 APPROXIMATE.
SUBMITTAL/REVISION DATE: 12/67
PL/I SUBLIBRARY COLLECTION - RELEASE 1

AUTHOR: H. R. HAMILTON

DIRECT TECHNICAL INQUIRIES TO:
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P. O. BOX 5445
N. C. STATE UNIVERSITY
RALEIGH, NORTH CAROLINA 27607

DESCRIPTION - THE SUBLIBRARY COLLECTION (SPC) IS A LIBRARY OF SUBLIBRARIES WRITTEN IN PL/I FOR USE BY PL/I PROGRAMS. THIS RELEASE OF THE SPC CONTAINS ABOUT 170 PROCEDURES MOSTLY IN THE AREA OF MATHEMATICS; MOSTLY, LINEAR ALGEBRA.


ALL PROCEDURES WERE DEVELOPED IN AN OPTIMIZER/CHECKOUT COMPILER ENVIRONMENT. NO DELIBERATE STEPS WERE TAKEN TO BE COMPATIBLE WITH PL/I(F), BUT NOTHING DELIBERATE WAS DONE NOT TO BE.

PROGRAMMING LANGUAGE - PL/I

MINIMUM SYSTEM REQUIREMENTS - PL/I COMPILER

DOCUMENTATION: 175 PAGES, $7.75 ADDITIONAL CHARGE.
CARD COUNT: SUBMITTAL/REVISION DATE: 2/75

NARGS - NUMBER OF ARGUMENTS

AUTHOR: MR. P. WOLFGANG

DIRECT TECHNICAL INQUIRIES TO:

TECHNICAL ASSISTANCE CURRENTLY NOT AVAILABLE.

DESCRIPTION - NARGS IS A PROGRAM TO DETERMINE THE NUMBER OF ARGUMENTS SUPPLIED TO A SUBROUTINE OF FUNCTION. IT ASSUMES THE STANDARD OS/360 CALLING LINKAGE. IT SHOULD NOT BE CALLED FROM A MAIN PROGRAM. THE VALUE OF DUMMY IS IGNORED ON ENTRY AND SET EQUAL TO THE VALUE OF THE FUNCTION. NARGS MAY THEREFORE BE CALLED AS A SUBROUTINE.

PROGRAMMING SYSTEMS - WRITTEN IN ASSEMBLY LANGUAGE AND REQUIRES OS/360.

MINIMUM SYSTEM REQUIREMENTS - THOSE REQUIRED FOR OS/360.

DOCUMENTATION: 6 PAGES, NO ADDITIONAL CHARGE.
CARD COUNT: 29 APPROXIMATE.
SUBMITTAL/REVISION DATE: 04/68

PROGRAM COLLECTION: STRUCTURED PROGRAMMING, UTILITIES, TRANSLATORS, SIMULATOR, HASP MODIFICATIONS, AND MACROS

AUTHOR: DONALD S. HIGGINS

DIRECT TECHNICAL INQUIRIES TO:
MR. DONALD S. HIGGINS
B-3
FLORIDA POWER CORPORATION
P. O. BOX 14042
ST. PETERSBURG, FL 33733

DESCRIPTION - THE FOLLOWING COLLECTION OF PROGRAMS ARE INCLUDED IN A SINGLE DISTRIBUTION PACKAGE:

GENERAL PURPOSE ASSEMBLER MACROS - SUBENTRY & SUBEXIT,
STANDARD LINKAGE WITH REENTRANT OPTIONS; EDIT PACKED DATA USING A MASK; EQUAL, COMMONLY USED EQU'S; PERFORM, PENTRY, PEXIT - STRUCTURED PROGRAMMING BLOCK CONCATENATION USING NO
CONTINUED FROM PRIOR COLUMN

REGISTERS: IF, ELSE, FI - STRUCTURED PROGRAMMING ALTERNATE BLOCK SELECTION; DOCASE, CASE, ESAC, ESACOD - STRUCTURED PROGRAMMING MULTIPLE ALTERNATE BLOCK SELECTION; ACCEPT + DISPLAY SIMPLIFIED I/O; DCWV - DEFINE V TYPE ADDRESS FOR DYNAMIC SUBROUTINES.

RENUMER - PROGRAM RENUMBERS FORTRAN IV SOURCE PROGRAM AND PRINTS CROSS REFERENCE.

STRUCTURED FORTRAN TRANSLATOR - TRANSLATE A STRUCTURED GOTO­LESS FORTRAN PROGRAM WRITTEN IN STRUCTURED FORTRAN INTO ANS FORTRAN. LANGUAGE EXTENSIONS INCLUDES NESTED IF-ELSE-FI; NESTED DO WHILE, DO UNTIL, DO-OD; NESTED DOCASE, CASE, ESAC, ESACOD; NESTED PERFORM (FM)-PENTRY-PEXIT.

STRUCTURED FORTRAN TRANSLATOR - THE TRANSLATED VERSION OF THIS TRANSLATOR CAN BE USED ON ANY FORTRAN MACHINE.

SAMPLE ASSEMBLY PROGRAM USING STRUCTURED PROGRAMMING MACROS AND REENTRANT LINKAGE TO SOLVE THE 8 QUEENS CHESS PROBLEM.

TAPESTRY - GENERAL UTILITY TO LIST, DUMP, OR COPY PORTIONS OF ANY TAPE FILE, REGARDLESS OF THE TYPE OF LABEL ON THE TAPE AND THE POSITION ON THE TAPE. OUTPUT FORMAT SAME AS OS ABEND DUMP.

COPY SOME - UTILITY TO SELECT AND COPY, BY RECORD, ANY SEQUENTIAL FILE.

FPCLABEL - LABELS ANY NEW TAPE OR NON-STANDARD LABEL TAPE WITH A STANDARD LABEL AS DEFINED FOR YOUR INSTALLATION WITH YOUR OWN INSTALLATION ID.

TRAN3705 - READS THE OUTPUT OF A SUPERZAP DUMP AND GENERATES 80 BYTE 3705 ASSEMBLY LANGUAGE STATEMENTS WHICH CAN BE LED INTO THE 3705 ASSEMBLER TO GENERATE A CROSS-REFERENCE TO ASSEMBLY LISTING OF A 3705 EMULATOR.

HASPMODS - HASPGEN PARAMETERS AND MODS FOR 3.1, INCLUDES MOD TO PURGE PROCESSOR TO COLLECT ALL CONSOLE MESSAGES AND ALL SNBs ON A DUMMY SYSOUT FILE MAINTAINED ON THE HASP SPOOL PACK. THIS SYSOUT CAN THEN BE DUMPED TO A SEQUENTIAL QSAM FILE BY A PREVIOUSLY MENTIONED UTILITY, AND NUMEROUS ANALYSIS PROGRAMS CAN BE RUN ON THE SMB AND CONSOLE RECORDS. SECOND HASP MOD CONSISTS OF A $DC COMMAND TO DISPLAY THE FIVE LARGEST CONTIGUOUS REGIONS IN MVT. THIRD MOD IS A $DW COMMAND TO DISPLAY OUTSTANDING RQs AGAINST ICS MVT TO DETECT LOST INTERRUPTIONS.

PDSMLIST - UTILITY WILL LIST THE DIRECTORY ENTRIES OF ANY

CONTINUED FROM PRIOR COLUMN

NUMBER OF PDS LIBRARIES IN ASCENDING ORDER -- 780 PER PAGE.

PDSMLST - UTILITY LISTS THE MEMBERS OF ANY PDS SOURCE LIBRARY IN ALPHABETIC ORDER WITH SELECTION CONTROL.

GETPOSDE - SUBROUTINE SEQUENTIALLY ACCESSES MEMBERS OF A PDS IN ALPHABETIC ORDER.

DEBUG AID - PROGRAM TRAPS ANY USER DATA EXCEPTIONS, PRINTS AN ERROR MESSAGE, NOPS THE FAILING INSTRUCTION AND CONTINUES.

DEBUG AID - PROGRAM PERMITS THE FOLLOWING STEPS TO BE PERFORMED AT EXECUTION TIME: LOAD A PROGRAM INTO CORE, VERIFY AND/OR REPLACE DATA IN THE LOADED PROGRAM BY RELATIVE ADDRESS, EXECUTE THE MODIFIED PROGRAM, AND LOAD AND DUMP ANY PROGRAM.

COPY SSL - UTILITY PROGRAM WHICH WILL SELECTIVELY DUMP TO A QSAM FILE THE PRINT RECORDS CONTAINED ON A HASP SPOOL PACK FOR A JOB WHICH IS WAITING FOR PRINT.

LISTIQUE - UTILITY PROGRAM TO PRINT THE HASP QUEUE IN BATCH MODE BY READING THE CHECK POINT RECORD ON THE HASP SPOOL PACK.

TVOLCOPY - COPIES ANY STANDARD LABEL TAPE VOLUME TO ANY OTHER STANDARD TAPE VOLUME.

SIM370 - USES A SPIE MACRO TO SET UP AN ENVIRONMENT IN WHICH A USER PROGRAM CAN BE EXECUTED WHICH CONTAINS 370 INSTRUCTIONS RUNNING ON A 360 -- INTERCEPTS AND SIMULATES 370 INSTRUCTIONS.

TEXTEDIT - BATCH TEXT EDIT UTILITY WHICH ALLOWS SCANNING 80 BYTE RECORD FILES, SEARCHING FOR ANY NUMBER OF STRINGS OF TEXT AND LISTING AND REPLACING STRINGS.

UNITNAME - UTILITY TO EXAMINE THE UCB TABLES ON THE HOST SYSTEM AND PRODUCE A SOURCE PROGRAM WHICH CAN BE USED TO ASSEMBLE THE DEVICE NAME AND THE DEVICE MASK CSECTS WHICH ACTUALLY DEFINE THE UNIT NAMES WHICH CAN BE USED TO REFERENCE DEVICES.

GETPOSDE - SUBROUTINE ACCESSES PDS DD STATEMENTS SEQUENTIALLY.

PDSMLST - UTILITY SCANS PDS LOAD MODULE LIBRARY. IT LISTS EACH MEMBER AND THE CSECTS CONTAINED IN THAT MEMBER AND WILL THEN PERFORM AN INTERNAL SORT AND PRODUCE ANOTHER LIST CONSISTING OF EACH CSECT FOLLOWED BY ALL THE MEMBERS IN WHICH THIS CSECT OCCURS.
MRCLEAN - SET OF UTILITY PROGRAMS WHICH WILL PULL ALL THE DSCB RECORDS OFF OF ANY 3330 VOLUME AND CREATE A SEQUENTIAL FILE OF THESE DSCBS. PROGRAM SCANS SEQUENTIAL DSCB FILE AND SCRATCHES ALL TEMPORARY DATA SETS NOT CURRENTLY IN USE BY A PROGRAM IN EXECUTION. PROGRAM READS SEQUENTIAL FILE OF DSCBS AND PRINTS CONDENSED LISTING IN ALPHABETICAL ORDER.

DSNLIST - PRINTS REPORT OF CATALOGED DATA SETS WITH CATALOG INFORMATION -- INTERFACES WITH MRCLEAN.

GETCATLG - READS SYSTEM CATALOG AND CONNECTED CATALOG IN ASCENDING DATA SET NAME ORDER.

LISTMACS - UTILITY TO SCAN ANY ASSEMBLER SOURCE FILE AND LIST OCCURRENCES OF ALL MACROS AND/OR INSTRUCTIONS IN THAT ASSEMBLER SOURCE.

CHKREORG - DETERMINES IF REORGANIZATION OF PDS OR ISAM FILE IS NEEDED BY COMPARING NUMBERS IN PARM FIELD AGAINST PDS RELATIVE EOF TRACK NUMBER OR ISAM OVERFLOW RECORD COUNT.

REREAD - SUBROUTINE ALLOWS FORTRAN PROGRAMS TO REREAD THE SAME INPUT RECORD UNDER DIFFERENT FORMATS.

MVCL - SUBROUTINE ALLOWS FORTRAN PROGRAMS TO MOVE ARRAY DATA WITH THE MOVE LONG INSTRUCTION. MAY ALSO BE USED TO INITIALIZE ANY ARRAY WITH ANY CHARACTER VALUE.

KWIC - SUBROUTINE SIMPLIFIES GENERATION OF KEY WORD IN CONTEXT (KWIC) DATA. EACH TIME IT IS CALLED IT ROTATES A FIELD TO THE NEXT KEY WORD IN THE FIELD.

KWIC GENERATION - UTILITY READS ANY SEQUENTIAL FILE AND CREATES AN OUTPUT FILE WITH AS MANY COPIES OF EACH RECORD AS THERE ARE KEYWORDS IN A KEYWORD FIELD DEFINED BY A CONTROL CARD. OUTPUT FILE CAN BE SORTED ON KEYWORD FIELD TO GENERATE KWIC REPORT.

CLCL - SUBROUTINE ALLOWS FORTRAN PROGRAMS TO COMPARE ARRAY DATA OF ANY LENGTH WITH THE COMPARE LONG INSTRUCTION.

BY NAME CALL - THREE SUBROUTINES ALLOW FORTRAN, COBOL, AND ASSEMBLER TO DYNAMICALLY CALL AND/OR CANCEL SUBROUTINES OR PROGRAMS AT EXECUTION TIME.

MPS - MESSAGE PROCESSING SUPERVISOR FOR USE WITH TCAM OR SIMILAR TELECOMMUNICATIONS LINE CONTROL PROGRAM. ALLOWS TP APPLICATION PROGRAMS TO BE WRITTEN IN COBOL, FORTRAN, OR ASSEMBLER USING A SIMPLE SUBROUTINE INTERFACE; ALLOWS USER TO START AND STOP MESSAGE PROCESSING PROGRAMS AT WILL WITH SIMPLE COMMANDS. SUPERVISOR HAS A LOG FACILITY. CAN BE RUN IN BATCH MODE TO TEST NEW TP APPLICATIONS OR MODIFICATIONS.

BISAMSET - SUBROUTINE PERFORMS SAME FUNCTION FOR BISAM THAT SETL MACRO PROVIDES FOR QISAM.

PROGRAMMING LANGUAGES - FORTRAN, COBOL, AND ASSEMBLER.

MINIMUM SYSTEM REQUIREMENTS - OS (MFT, MVT, VS2-1.7)

DOCUMENTATION: 68 PAGES, $2.40 ADDITIONAL CHARGE CARD COUNT: 16,000 APPROXIMATE.

SUBMITAL/REVISION DATE: 12/74.

END OF ABSTRACTS