## FAST-FA



NEW FOR CIVIL **ENGINEERS** 

X\*SEC\$\*\*\* - Cross-section area calculations (formerly known as EARTH\$WG) can be used by civil engineers -

reduces time span between rod readings and calculated cross-sectional area. The general format is oriented to roadway work. Documentation from Fast-Fax. It's an off-line program, but it's in the 3-star library, ready for use.

ON Ø53

COMPETITIVE The competitive information INFORMATION package is now on-line. A file with 180 separately named computer services vendors has

such data as price, system used, computer location, sales areas and special remarks. Two sort programs access this file. COMPS\$ will sort by vendors' system name, prices, and geographic location (zip code). For example, it will tell you the names and prices of all T/S vendors with Hewlett Packard 2000A's. Or, it will tell you who charges less than \$7/TCH in Zip Code area 07. COMEX\* has detailed instructions on how to use the comps\$ sort program.

VENDR\$ prints data on specifically-named vendors. The program has a list of all vendors in the file. Suggestion: List it once, and post it by the terminal, because it's a long one.

DROPF\$ is a mailbox program that lets you swap competitive data with other ISD components. You can comment, criticize and update (for Headquarter's attention) COMPS\$ and VENDR\$.

All items have been reviewed by Division Counsel, in accordance with GE policy 20.5. If you gather data for the DROPF\$ program, please document your information so that the requirements of 20.5 can be met. Tom Choate 8\*273-4387 or Frank McCusker 8\*273-4472 will be glad to help you with any questions on this package.

STORAGE UNIT CHARGES Bob Schwartz, Manhattan How are the storage charges calculated for users' invoices?

Data Storage Units and Program Storage Units are calculated on a monthly basis and are determined by using a storage averaging concept for each user number. The average of 1) the end-of-day storage units, and 2) the maximum storage units reserved during the day for each saved, unsaved, created or purged file is recorded for each day. Files cannot be saved or created during the day and removed before the day's end without reflecting a storage charge.

The sum of the average daily storage units for the month is divided by the number of recording days in the month to determine the average storage units. This average unit value for the month is multiplied by the appropriate storage unit rate for the service used to determine the monthly storage charge.

PSU's and DSU's are both handled the same except that the user's share of the validation file applies only to the PSU calculation. Only one PSU is charged for validation for each user regardless of project identification Storage charges are calculated for DSS authors in the same manner as storage charges are calculated for any other user.

Invoicing is made on a user number or catalog basis and project identification supplements provide details of project identification charges. The current minimum monthly storage charge for any user number is \$1.10 for Mark II and \$1.20 for Network, Thanks Joe Steel, Product Development. IND for help on this one.

750 (7-70)

TTY: 8\*273-4524 For Fast-Fax call: Brian Berger Vic Henschel 8\*273-4345 8\*273-4525 8\*273-4421



## **BANKING AND FINANCE**



Product planning, promotion and pricing for the Banking and Finance targeted market is done by John Canning (right), Application Sales 8\*273-4656.

Providing software support for this targeted market are Ray Porter, (left) 8\*273-4589, and Bob Ruzicka, 8\*237-4592 in the Applications Development Operation.



THE

The Banking and Financial market consists of: Banking\*, Credit Agencies, Security

Brokers, Insurance\*, Real Estate, Investment Companies, Financial Management\*. (Items with \* indicate 1970 emphasis.)



I A L STATUS The Investment Analysis Language (IAL) is being offered by the American Bankers Associa-

tion to commercial Time-Sharing vendors. There are at least three competitors offering IAL at this time: Graphic Controls, Interactive Data and On-Line Systems. We have worked with the ABA for an acceptable contract to obtain IAL but have not been able to come to terms. As of this date it is unlikely we will have IAL in the near future.

PRESENTA-TIONS AND VISUAL AIDS When making a presentation to a prospect or customer use the sales folder "General Electric Time-Sharing Service for the Financial Executive

(Pub.#261010). Insert sales promotion sheets, magazine reprints and customer profile.

A presentation of 60 slides and script on the Marketing and Economic Forecasting programs (FOSTR\$, GROWTH, GROTR\$, GETSA\$ and TRANF\$) is available for \$20 from Minnie Ferguson, Marketing Communications. Three of these programs FOSTR\$, GROTR\$, and GROWTH (DEMOG\* on APEX\*\*) are now available on the Mark II.

SALES

The keys and tips for successful sales to this market are contained in two 3-ring notebooks:

LET'S SELL TO BANKS and LET'S SELL TO FINANCIAL MANAGEMENT. The Financial Management book was introduced at Callaway Gardens. The books can be ordered through John Canning 8\*273-4656 — he has them in stock and can send them to you. They are loaded with information on what products in our line appeal to what prospects — what departments of financial institutions can use what programs. Don't be without this book if you intend to sell to financial groups.

FINAN\$
SUCCESSES

Our Mark II BASIC Financial Analysis System has been extremely well received in the

banking, management finance and public accounting circles. Among the more successful users are: Security Pacific Bank (L.A.) for analysis of corporate loan; Cleveland Twist Drill Co., to help determine their financial position in future years, and Ernst and Ernst (Baltimore) for client consulting in the management services area.

GEPAY\$ FIELD TEST GEPAY\$, a generalized "day work" Mark II FORTRAN payroll package for up to 300 employees is now in field test.

Some of its features include -

- Automatic Pay Calculation
- Labor Distribution Reports
- Automatic 941A and W-2 Reports
- Payroll Summary and Register
- Automatic Restart Capabilities
- Bank/cash Payment Summary
- · Payroll Check Writing.

QUIZ

A customer has asked you to help solve the following problem:

- 1. He has a Mark I and Mark II contract
- 2. He wants to save and update every day a list of 10,000 items. This list need not be listable, but the updates should be performed and their impact listed every day.
- 3. Formats: the 10,000 items are all 2-digit positive integers (0-99). The updates are typed in random order, 1000 per day, as 2 integers. The first is a 4-digit number representing the item to be updated (0-9999) and the second a 2-digit number (generally negative -20 to +20) in a listable file.
- 4. The customer wants to print after each daily run the result for each updated item in the following format: (I5,I5,I5,I5) representing item number, previous quantity, modification and new quantity. There is to be one line per update item. No updating is required for items where the new quantity is negative. Instead, 3 asterisks should be printed after the list above.

The question is this: What system should this be run on — Mark I or Mark II, and how much would it cost on each system per program run, assuming a paper tape input of the update file(s). The answer assumes efficient programming. Best head-quarters figures will be printed in the next issue. (Orders of magnitude are 100 CRUs for Mark I, and 10 for Mark II) How much can you beat those? Send Fast-Fax a quick letter with your results. We'll publish the best figures.

ERAN A new subroutine, ERAN, for sensitivity and error analysis of NEWS a mathematical model is now in the Mark II Library. A past issue of the STATOGRAM Newsletter is devoted to a discussion of ERAN. Just request STATOGRAM, Vol. 15, No.2, from Mrs. Beulah Melius, Bldg. 5-237, Distribution Unit, R&D Center, General Electric Co., P.O. Box 43, Schenectady, N.Y. 12301. (Submitted by Cal Cillay - Applications Development Operation.)

FASTFIX

In FORTRAN and BASIC, real variable (floating point) must be initialized to 0.0 by the use of the initial value. This is not true for integer values.

Jay Segal, IND, Teaneck.

DON'T LET SUPER-BASIC OUTSELL YOU Other Salesmen who offer Hyper-Basic, Super Basic, etc. don't have as much to offer as the BASIC you can sell on Mark II. Engineering Services came up with a series of features you

can use to out-perform those fancy-named BASICs. Dr. Norm Harvey, Dr. Hal Moore and Russ Lyddane have a series of BASIC features that will help you. They're on the Mark II systems stored under BASDEMO\*\*\* — they're listable — take the coding to your customers and let them see how they can work these fancy features into their programs. Five programs are described here — more will follow in later issues of Fast-Fax. This first group demonstrates how to handle strings and files of strings.

- 1. LISTER This is a simple program (self documenting). To be used when several files are to be listed. The principal reason for including it is to show the same general structure as the more complex punching and paging programs which follow but this is easier to read.
- 2. PUNCHER This operates on a series of files whose names are included in data statements. It produces a punched paper tape containing a listing of each file, plus the commands necessary to read the tape into the system. When the tape is loaded into the reader and turned on, it will automatically stop after NEW (filename. After the computer types READY, the user turns the tape on again. He repeats this after each occurrence of NEW, TAPE, and SAVE.
- 3. PUNCHLAB This differes from PUNCHER in that it adds a legible title and date in the tape header for each file punched. Notice that it does no harm to read this header to the computer on input, since it terminates with a cancel, and these punches will be ignored.
- 4. PAGER This Subroutine produces paginated listings of the designated files which can be cut apart into numbered  $8\% \times 11$  pages.
- 5. PAGETAPE This does the same as PAGER, but if the tape punch is turned on it will also produce a computer-readable tape of the program, although without the commands involved in naming and saving them.

All the programs are self-documenting. Make a paper tape listing of them and give them to your customers as a package of programming aids. Remember, they're more than functional — they exhibit some slick tricks for handling strings.

## N DATANET SOFTWARE SERVICES

Special procedure still required for old DSS author. The Xanadu Package (Insurance Software) is available on the following Mark II Systems:

System No.	Catalog No.
010	NDK82 (Network rates
011	TGK82
013	BAK82

For prospects who want to access Planning Services Xanadu Software, follow these procedures:

- 1. Get the prospect to sign a GE Time-Sharing contract (MF-1).
- 2. Call Planning Services Company for a preassigned user number for your new customer. Call dial comm 8\*323-0111 641-0137 and ask to speak to Mr. Charles Smeeth or Mr. Bob Canbier. That address is 120 W. Madison St. Chicago, III 60602.
- 3. Go through the Mailbox program and revalidate the user number for user number billing to your customer's address. Be sure to put password protection on the user number, according to your customer's wishes. Supply your cost center to the program for revenue credit to your office.

Note: A Xanadu user may become a GE customer (if you want him as a customer) by just having a Planning Services user number billed to him. In many cases, users do not require their own catalog and are not obligated for the \$100/month minimum. In all cases, of course, the customer is obligated for the \$100 initiation of service charge.

## GPSS INTRODUCTION NOW AUGUST 17

The market introduction of GE Time-Sharing GPSS has been changed to August 17 due to a revision in the documentation schedule, says Bill Noble, Application Sales. A good User's Guide is a key part of the marketing plans for Time-Sharing GPSS and essential to its success. The delay will not affect the July 27-29 field workshop in Bethesda (final documentation drafts will be available).

AND ASSOC.

The previous issue of Fast-Fax announcing Inatome as a level 1 DSS author (Construction Industries) neglected to state his

phone number. Here it is: Joe Inatome 313 542-4862 (8\*362-2011).

PRESENT DSS AUTHORS The following authors are in the DSS Q01 catalog on Network. They are either announced via Fast-Fax (for Level I) or by a

Sales Bulletin (for Level II). All administrative procedures for field people are outlined in Sales Bulletin #131.

## AUTHORS ON Q01 CATALOG - NETWORK

Marine Resources (L1) Electric Util. Eng. Op(L2) CAPEX (Autotab)(L1) Time/Ware Corp(L1) Leap Associates(L1) Inatome & Assoc. (L1)

Sunn Real Estate (L1)
GE Corp. Engineering (PA300)(L2)
Multiple Funding Services Inc.(L1)

In addition to these, the old (1969) authors are being renegotiated and converted to the new procedures. This leaves the following authors in the old DSS "K" Catalogs:

First Natl City Bank K60/84 NGPA K80 Clary K87 Garrett K76 Planning Services K82

As conversions occur, the field will be informed via a special news letter.

## **FAST-FAX CLASSIFIED**

### WANTED

## AVAILABLE

WANTED - Mark I air conditioning, sheath measuring program. Contact Marilyn MacDonald 8\*273-4327 or Fast-Fax.

An evaluation of GECOS III vs. ISD Mark II Time-Sharing. Features, benefits, benchmarks, file sizes, language comparisons, turnaround time, libraries, strengths and weaknesses. Send results to Fast-Fax.

Hank Altemus, Bala Cynwyd, is looking for a program that will plot the residual values for MULRG\$, or an equivalent. Contact Fast-Fax.

George Chipmen, Pittsburgh, wants a program to do orifice design, flange type. Contact Fast-Fax. AVAILABLE — During the last two weeks of July, FTEST\* will be on the ₱53 catalog. It's the Fortran test written by Judy Jehn. It serves as a final exam for Fortran classes. Get your listing during the last two weeks of July.

Index of NEWS programs: NEWS1\*NN for Mark I; NEWS2\*NN for Mark II. List FASTR\*FAX for the index. Updates are sequentially numbered to minimize connect time. See the Mini-Manual with this issue.

AVAILABLE - Terminet-300 horizontal tabbing demos TABB\*\* for Basic demo; TABF\*\* for Fortran demo. Thanks to Bob Cohen, Western Region Staff.

## FAST-FAX



In Time-Sharing Service

August 1, 1970

## FREE CRU'S ON LNBAS & LNFØR

Mark I "Friendly Power" now offers free CRU's for Learn BASIC and Learn FØRTRAN as an established product. For the instructional programs, users pay only \$8.50 terminal connect time. It's great for D.A.S. customers who have no TCT charge! The overwhelming success of the initial offer of FREE CRU's was so great that it will be continued. It presents a good opportunity to your customers to become more sophisticated users, and they can offer training to others in the firm.

## MORE ECONOMICAL STRESS\*\*\*

An improved version of STRESS\*\*\*, performs linear analysis of elastic, statically loaded, two- or three-dimensional framed structures, is now available. This new version, STRESS\*\*\*, uses the economical binary random access file capability of the Mark II system.

## Among the new STRESS features are:

- \* It runs approximately twice as fast as the previous version and even more savings should be expected with larger problems.
- \* The user now works with one binary random access utility file instead of 16 utility files.
- \* For user inputs, instead of just a question mark (?), the new version types out STATEMENT?.
- \* A completely rewritten and more explanatory User's Guide on STRESS\*\*\*, Pub. No. 908344A is available.

This more economical version of STRESS is practical for analysis of building frames, transmission towers, ship structures, box culverts, tunnel sections, and grillages, says Boman Irani, Appl. Dev. Opr.

## PROGRAM REFERENCES FOR TARGET MARKETS



Your customers will be pleased, too with the two new problem-solving program references, as is Pat Wichman, secretary to Manager-Communications, Marketing. For petro/chem customers and prospects, there's a summary of 80 problem-solving programs. Ask Distribution Services, Scotia, N.Y. for Pub. No. 286050. For Manufacturing customers, CAM (Computer Assisted Manufacturing) offers 30 such programs. It's Pub. No. 290060. Both of the colorful brochures will appeal to customers as a convenient reference for programs to make his job easier.

## LOG LINEAR PLØT

Jim Rash, Reseda. Do we have a program that will produce a log linear plot of data?... Yes, it's on APEX\*\* called TCPLT\*. You could also use the library subroutine PLØT and take the logarithm of the dependent variable.

800 (8-70)

For Fast-Fax call: TTY:8\*273-4524 Brian Berger Vic Henschel

8\*273-4345 8\*273-4525 8\*273-4421 INFORMATION SERVICE DEPARTMENT

## N DATANET SOFTWARE SERVICES

## IN THIS ISSUE

- \* CAPEX Inform file
- \* Garrett New Demos
- \* Hyde & Bobbio Electrical Package
- \* Marine Resources Software
- \* Multiple Funding Offering
- \* PA300 Demo Files
- \* TIME/WARE Contact
- \* ZETA Plotter

## NEW PETRO PROGRAMS FROM GARRETT

Five more programs are now available for petroleum-oriented users from Garrett Computing Systems', a DSS author, on the GE Mark II System.

- Pumping Unit and Rod String Design evaluates current pumping conditions and designs conventional units and rod strings.
- \* Bottomhole Pressure Analysis analyses pressure transient performance from pressure buildingup tests, drawdown tests, and multi-rate flow tests.
- \* Gas Well Simulator a one-dimensional, radial, one-flowing phase, unsteady-state, heterogeneous gas well model.
- \* Stratified Waterflood Element Model model will simulate five-spot, nine-spot, line-drive, peripheral drive, or crested-drive injectionproduction configurations.
- \* Core Data Processing converts input air permeabilities to liquid permeabilities, computes waterflood residual oil saturations, computes connate water for each sample, and sorts data into ascending order of permeability for plotting and other processing purposes.

## CAPEX INFORM FILE

Capex Corporation, author of AUTOTAB and AUTOGRAPH (new DSS Level 1) has added an information file for customers. From the user number in the DSS Q01 catalog, call up:

ØLD INFØRM (READY) LIST

New features outlined include:

- 1. New row heading capability
- 2. Printing specific rows or columns
- 3. Suppressing of rows or columns
- 4. Sorting of rows or columns

Regarding the special file needed to run AUTO-TAB, users can, without calling Capex, simply:

NEW AUTØTEMP (READY) 100 CR SAV

## PA300 DEMO FILES

Additional demonstration files for PA300 are ready for you to use. Now, you may demo PA300 to prospects in any targeted market using examples tailored to their needs.

DØ1DM*	Facility	estin	nate	problem	7 cost
LØ1DM*	inputs	(6	pro	babilistic)	with
	various	distri	butio	ons.	

DØ4DM*	Market forecast problem. 5 pro-
LØ4DM*	duct line sales estimates, deter-
	ministic and probabilistic.

DØ5DM* LØ5DM*	System reliability problem (for research/system analysis people). A system of 3 stages I, II, III, with two-one-three-fold redundancy in the stages. Reliability of each
	component is entered probabilistically.

DØ6DM* LØ6DM*	Error analysis in a thermistor temperature control. Three probalistic inputs.
------------------	---

DØ7DM*	Mechanical linkage proble	m-
LØ7DM*	variation of one angle vanother, under 1% tolerances	
	linkage bar lengths.	

## ZETA PLOTTER SOFTWARE

Software (to be used only with the Zeta Research Inc. digital plotter) is available from DSS Level 1 author Zeta Research, Inc. A set of FORTRAN subroutines lets the user write his own plotting program for his unique applications. The software include a program to draw flowcharts of FORTRAN programs, a program to generate three-dimensional drawings of topological surfaces, and interactive plotting language program, ZETAPLOT.

Contact THE INTERPRETATION GROUP

Zeta Research, Inc. 1043 Stuart Street LaFayette, Calif. 94556 8\*422-9011, (415) 284-5200

## DIFIL - MARINE RESOURCES PACKAGE

DIFIL, developed by DSS Level 1 author Marine Resources, Inc., performs digital filtering without the use of special programs for generating digital filter parameters. For electrical engineers doing filter simulation, it eliminates the computation of filter coefficients and reduces running time. It can be used to implement the digital filter equivalent of any analog circuit whose transfer function can be represented by a ratio of polynomials.

Dr. Robert Rubega Marine Resources, Inc. 150 Winton Road, North Rochester, N.Y. 14610

(716) 654-8430 Dial Comm 8\*256-9111

## DSS INSURANCE SOFTWARE

A new Datanet Software Service Level 1 author, Multiple Funding Services, Inc., brings insurance software into your market basket. MFS is mailing sales kits to each ISD sales office. Follow the standard procedures detailed in Sales Bulletin 131.

Author: Multiple Funding Services, Inc.

575 Lexington Avenue Suite 2880

New York, N.Y. 10022

Contact: Allan Katz, MU8-2600, or

Bob Remick, MU5-9411. Dial Comm 8\*222-0111

Application area: Life Insurance; Pension and Estate Planning.

Description of Software:

3-page estate planning report writer, 28-formula pension & profit sharing analysis, Cash flow analysis of various life insurance policies, Agency accounting record, writer, Monthly and YTD statement, and Percentage analysis.

## TIME/WARE CONTACT

If you are interested in the quality control package from TIME/WARE, Inc., contact:

Jerry Johnson TIME/WARE, Inc. 688 Main Street Redwood City, Calif. 94063 (415) 967-4876 Dial Comm 8\*423-0111

## HYDE & BOBBIO ELECTRICAL AND ILLUMINATING PACKAGE

Five electrical and illuminating engineering programs are now available from DSS 1 author:

Hyde & Bobbio, Inc. 90 Delaware Avenue Detroit, Mich. 48202

Contact: Steve Squillace (313) 871-0350 Dial Comm 8\*362-4011

SHØRT\$1 Three-phase bolted fault analysis.
Output includes RMS and D.C.

offset at 0, ½, 1, 3 and 8 cycles after the instant of fault, and

synchronous values.

VØLTD\$ Voltage drop cable specification.

Specifies minimum size copper or aluminum cable that has the necessary ampacity and generates a voltage drop less than that set by

the user as a maximum.

VØEFU\$ Generates an unabridged table of

coefficients of utilization for illuminating engineering use.

LUMCØ\$ Generates unabridged tables of

wall and ceiling cavity luminance

coefficients.

VCPLU\$ Calculates visual comfort probabi-

lity ratings for specific interior

lighting installations.

Applications of this software package: Electric utility companies, electrical and lighting consultants (especially sales departments of electric utility). SHØRT\$1 and VØLTD\$ may be useful to transmission and distribution engineers.

## CIFLO\$ - CONVERGENCE CONSIDERATIONS

An improved version (7/17/70) of the load flow program CIFLØ\$ permits a user to print out the current results when convergence is not obtained. He simply responds YES to the program question, DØ YØU WANT A PRINTØUT ØF IMMEDIATE RESULTS?

Additional suggestions on solving convergence problems are included on page 2 of the User's Guide, 906325A, says Fred King, Electronic & Electrical Applications.

## CONVENIENT STATISTICAL INDEX

Hats off to Barbara Plomondon, ISD-Documentation Unit, for the handy margin index on the back cover of the recent revision of STATISTICAL AND MATHEMATICAL PROGRAMS, Mark II User's Guide, 807121B. The previous version documented only four statistics programs... but this has been expanded to 11 programs, including the listable program CHICØN\*\*\*, for performing a chi-square test, and the new program STAREG\*\*\*, for multivariated regression using double precision.

## **TN-300 SUPPLIERS**

Barry Howard, Manhattan: Who are the suppliers of Terminet-300's?... Among the vendors are GE Field Engineering Dept., GE Service Shops, and Time-Sharing Terminals, Rockville, Md.

## **GEPDS EXPANDED**

A number of additions to GEPDS, Process Design System package that computes heat and material balances, are now available to time-sharing users. The developments, many in response to customer requests says Tal Briddell, Application Sales, include:

- \* User can input his own vapor-liquid equilibrium data.
- \* A restart capability lets a user restart his program run at any point... the matrix check, the calculation phase, or the printout.
- \* A stabilizer or stripping column module (this is a distillation column with top tray feed).
- \* Intermediate information during a calculation... lets user monitor some critical parameter during the convergence and selectively change

## WANT FASTER SORTS?

One of the fastest computer sorting techniques used today is called the Shell sort, named after Dr. Don Shell, Information Services Division staff. It has been used in the batch world for a number of years. Dr. Shell sent to Fast-Fax three sort routines that incorporate his famous technique. In the APEX\*\*\* Library, they are:

SHEL1*	Sorts a vector of real numbers into ascending order, FORTRAN.
SHEL2*	Sorts a vector of numbers con-
SHEL3*	tained in the vector X\$(,BASIC. Sorts a vector of strings contained

in the vector X\$(,BASIC.

All the programs are self-documenting.

## MARK I DISCONTINUED DOCUMENTATION

Documentation for the Mark I programs listed below has been discontinued due to lack of use. However, limited use may be found for a few and those ending with L may be listed. The discontinued documentation follows:

RETWL\$	801204	TNT1X\$		
GIRDR\$	801205	TNT2XL		
COMP2\$		BESLX\$ ARCTAL		
COMP3\$		BICOXL		
CMDET\$	806223	COMP1\$	806228	
CSEQN\$ ZCOP1\$		ERRXX\$		
ACOP2\$		ERRINL GAMXX\$		
FREXL		PSGADL	710218	
TLU1X\$	806225	CBGEOL	801206	

## **FAST-FAX CLASSIFIED**

WANTED	AVAILABLE
Lou Simons, Berkeley, needs a program to design bolted flanges under ASME boiler and pressure SEC. 8, Division 1. code. Contact Fast-Fax.	PA300 RUNNING PROCEDURES, contact Clarence Selin, Application Sales, or Fast-Fax, for 2-page summary and statements.
Puerto Rico office, would like Mark 1: 1) FCC program on azimuth and path calculations for microwave, 2)	Set of 6 sports theme t/s ads for use in your local paper. Ads ran in The Wall Street Journal. Contact Bob Richards on, Manager-Communications. (Each office must pay for their own advertising space!).
Terry Clapp, Manhattan, wants an	

information retrieval program using binary files (similar to SERCH\$ or

Judy Jehn, Dayton, a paper tape

punch that can be connected to a digital voltmeter (to punch output on tape for use on time-sharing).

RETRV\*). Contact Fast-Fax.

Contact Fast-Fax.

## WANTED

Dick Beldon, York, Pa., is looking for environmental pollution control programs. Contact Fast-Fax.

## Jum Rossen New Licians Le it trus fruit inter Lucia com les thé fine d'une mandre use parand et se chareed regionner ruse le l're car de dom in de bou septe s l'original parangement per se septe de de diffing la combination of p.m.



**AUGUST 15, 1970** 

## CPMX1\$\*\*\* IMPROVEMENT

The restriction of having 5 resource codes per line for CPMX1\$\*\*\*, project planning program for 500 activities, (page 3 of AR-4) is being removed. Now customers can have as many resource codes as they want. This will help to a great extent in adding or removing some activities in the data file without major reshuffling of resource codes. Thanks Din Kurawadwala, Appl. Dev. Opr.

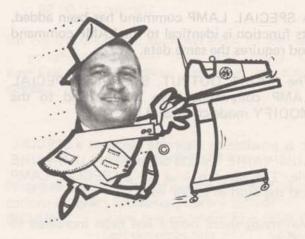
## **BUSINESS PROGRAMS EXPANDED**

GETSA\$\*\*\*, marketing and economic forecasting program, is now available on Mark II. This version has been expanded to include optional output to a file and plotting routine.

Mark II leasing programs, LESEE\$, LESOR\$, and LESIM\$, have been expanded to include two additional methods of depreciation: 150% declining balance with switchover and 150% declining balance without switchover... Thanks John Channing, Application Sales.

### DATA TRANSMISSION TROUBLES????

If you are receiving bad data at the terminal, but you are perplexed over its origin, there are a couple of programs on APEX\*\*, (DELTA\*, and TESTR\*) which can help you. These along with information requested on the attached trouble log, can help you improve service. For details, see the attached sheet.



## GROVER RECEIVES FIRST TERMINAL BONUS

For each Datanet-730 terminal that is leased or sold, a bonus of \$25 will be paid... Jerry Grover, Pittsfield, is the first to receive a \$25 bonus! He signed a contract for lease of a DN-730 with the GE Power Transformer Department in Pittsfield, announced Dick Sharman, Manager-Terminal Devices. As specified in NEWST\*01, the proper forms, signed by the branch and district managers accompanied the notice. Congratulations, Jerry!

### STATAN\*\*\* FORMULAS

Don Soard, Tulsa: Can we find out what formulas are used by STATAN\*\*\*?... The 34 statistical measures generated by STATAN\*\*\*, statistical analysis on data for one variable, are defined in the National Bureau of Standards Handbook 101, pages 110 and 120. Copies of these pages are available from Fast-Fax. We also have a "Statistics Bibliography" which might be helpful for your statistically-inclined customers.

800 (8-70)

For Fast-Fax call: TTY:8\*273-4524 Brian Berger Vic Henschel 8\*273-4345 8\*273-4525 8\*273-4421



# BRIGHTER LIGHTS\*\*\*

The Mark II interior Lighting design program, LIGHT\*\*\*, has several new features and improvements:

- A SPECIAL LAMP command has been added.
   Its function is identical to the LAMP command and requires the same data.
- The SHORT OUTPUT, STOP, and SPECIAL LAMP commands have been added to the MODIFY mode command list.
- It is possible to alternate between a SPECIAL LUMINAIRE file and the built-in LUMINAIRE file. The same is true for a SPECIAL LAMP and the built-in LAMP file.
- 4. Maximum room height has been increased to 100 ft.
- If the selected fluorescent luminaire has a tube length which exceeds the row length (either lengthwise or crosswise), no solution will be attempted for that layout.
- On-line error recovery procedures have been improved.

For a complete list of improvements call LITINFO\*\*\*. These new features were made with the cooperation of Pete Janca, San Gabriel; his customers, and Terry McGowan, GE Lamp Division.

## TROUBLE CALLING FAST-FAX??

We've been having telephone troubles, but they should be fixed now. If you call Fast-Fax, however, and the telephone seems dead, don't cuss a blue streak and hang up. We can hear you and will click the receiver several times. When you hear the repeated clicks, identify yourself and give us your Dial Comm number, and we'll call back. Also, try one of our other telephone numbers (345,421,525,714) or send your message on the TTY, 8\*273-4524!

## NO NOON FREEBEES!

Jim Rossini, New Orleans: Is it true that internal users can use the Mark II system from noon to 1 p.m. and not be charged for computer use?.. Not so. There's no coding in the bookkeeping software to pick-up an exception to the billing charge from noon to 1 p.m.

## **BILLING DISCUSSION**

- Q. When a customer cancels Mark I but maintains a Mark II catalog, he's not really cancelling our service, so he shouldn't need to give us 30 days notice. Right?
- A. Wrong. He's cancelling Mark I Service, and it requires 30-day notice. The 30-day notice will probably span two calendar months. The full minimum will apply to the month he gives notice but not to the month he actually terminates. For example if he gives us notice on the 15th, then uses only \$70 worth of Mark I services, he will still be billed \$100 (Minimum) for that month. However, for the next billing period he will be billed only for what he uses, and will not be charged the minimum. There is no prorating done.
- Q. Our contract does not define a month in the same context we define it in our billing. What is our cut-off date?
- Billing is closed on the last fiscal Thursday of the month.
- Q. Does a customer get billed \$10 for cancelling?
- A. He shouldn't. IND has been notified not to charge for cancellations.
- Q. When load shifting and system changing happens, is the customer charged for changes required in his user number or password?
- A. He should not be charged if we change his number or password. IND has received word of this problem.

## FORCING A REGRESSION CONSTANT

In the Mark I and Mark II libraries, only one regression program allows you to force a regression equation to go through the origin, i.e. to force the regression constant to be zero. This is the Mark II program STAREG\*\*\*, documented in User's Guide 807232B.

A Cleveland customer recently ran MREG\*\*\* and got a regression constant of 102. He wanted to know how to force this constant to 100. This was accomplished by subtracting 100 from each of his Y values and then imput the modified data into STAREG\*\*, using the no-intercept model.

The no intercept option is being used by a Los Angeles customer who carries out a regression analysis on a set of economic data in which each variable constitutes a time series. In this situation the Durbin-Watson coefficient (described on page 17 of FOSTR\$ Users Guide 906330) is quite likely to be smaller than a "critical d," indicating that the residuals are positively serially correlated. When significant serial correlation is observed, the Users Guide suggests you attempt to avoid getting "a deficient reading for Durbin-Watson coefficient." How? Either include additional variable in the analysis or exclude some variables from the analysis.

Another procedure for an attempted remedy is suggested by Lawrence Salzman, "Computerized Economic Analysis," McGraw Hill, 1968, pp. 158-162. An additional suggestion by Salzman is transformation of variables. He also recommends that various combinations of the three procedures be used.

## PA300 DEMOS HAVE ZEROS NOT ALPHA O's.

We listed 10 great new PA300 demonstration programs in FAST-FAX 95-29, Datanet Software Service News, but the program names were wrong. Those alpha O's should be the numeric zero (0). We regret any inconvenience it may have caused you.

## \$\$\$ PICK YOURS UP TODAY \$\$\$

Did you know...

- \* The Friden Division of Singer is a Network customer with 140 locations, each already validated with a user number?
- \* That Singer Headquarters has developed two inhouse applications (terminal diagnostic and demo for Friden 7102 terminal) for these locations to use?
- \* That most of these locations billed less than \$2.00 last month?

No contracts to sign, no MAILBOX to fool with — go ahead, pick up those \$\$\$ today. Call Fast-Fax for the address, for your area Friden contact.

## **NOW ON APEX\*\***

Programs recently added to the APEX\*\*, Applications Program EXchange, library include:

ØNNUM\* Adds line numbers to a DSM file. Self-documenting, FORTRAN Deletes line numbers from a file.

Deletes line numbers from a file. Self-documenting, FORTRAN

Thanks Bill Backer, Sales Programs.

ISAMF\*ILE A file conversion program to be used with the Datadisplay and summary statistics packages (ØNESAM\$\*\*\*). Mk II BASIC Thanks Bob Caton, Rochester, NY

RCFIL\* For electronic customers, Chebyshev highpass RC filter design programs with automatic curve plotting. Mk II BASIC Selfdocumenting. Thanks Mike Schermer, Albuquerque.

SCDAT\*

Plots a scatter diagram of X-Y values, first quadrant only. A statistical aid of graphic representation. Self-documenting. Mark II BASIC, Thanks Jack Kajfasz, Buffalo. Sample data file available, DATSC\*.

## YOUR PROFILE LOOKS GOOD, BUT

Profiles of Network customers are revealing, but there are still a few we haven't seen, reports Nick Kefal, Network Sales. We can help you zero-in on logical accounts and applications for Network when we receive all available profiles (or a brief application write-up). Send your information today to Nick Kefal or George Cofield, Network Sales at Headquarters.

## NEW NUMERICAL ANALYSIS SUBROUTINE

Ray Kidon, Canadian Fast-Fax: Is there any documentation for the new subroutine CLINEQ that does complex linear equation work? Cal Cillay Applications Development Operation, provided us with three files now on APEX\*\* that explain the linear equation situation. Call PAG52\*, type RUN, this program (requiring no input) will explain linear equation work; DAG52\* explains double precision linear equation work; and CAG52\* explains complex linear equations. The 52 refers to page 52 of Numerical Analysis Routines (807231). A revision of the documentation is in process.

## **OFF-LINE ADDITIONS**

PAINT\$ is available on the Mark I System written in BASIC. For the paint chemist, it calculates the composite values for economic mixtures of paint. Documentation is 425070.

ANLAB2 and ANLAB3, atomic absorption sampling calculations, written in BASIC for Mark I. On APEX as ALAB3\* and ALAB2\*. Documentation is 424 070.

FLASH\$ - a flash distillation program in Mark II BASIC — handles 50 components and 10 consecutive flashes. Documentation is 524050.

### **CUSTOMER PROGRAMS FOR APEX\*\***

Paul Morey, Berkeley: One of my customers wants to give me a program for the APEX\*\* library. Is there any problem of accepting it?... Get him to fill out the new Program Submittal Form, MF-45. Branch Managers and District Managers were recently sent a small quantity. More are available from Minnie Ferguson, Marketing Communications, 8\*273-4749.

## OFF-LINE DOCUMENTATION FROM FAST-FAX

Mark II 'off-line' library programs are now available on-line with their current name plus three asterisks (\*\*\*). Documentation, 500000 series, for Mark II is still available from Fast-Fax. (Mark I off-line documentation is the 400000 series).

## TIME-SHARING TEXTS FOR SECONDARY SCHOOLS

Kiewit Computation Center at Dartmouth College is issuing a series of Secondary School publications on computer time-sharing. The cost is \$1.00 each. The first five are:

Title vel been paled of neither !	Author
BASIC in Ten Minutes a Day	Hoitsma
Orbital Mechanics	Dalton
School BASIC	Weissman
A Computer Course for:	
Business Students	Waterhouse
Data Reduction Programs for	
Introductory Physical Science	Congdon

Order from: Kiewit Librarian, Dartmouth College, Hanover, N.H., 03755.

CLASSIFII	ED ADS AUGUS	ST 15, 1970
	WANTED	
Hall 3 b.r. 1 "del vd., \$170. 507. Perk A/C rm., 2 bath, ed livdin, w	Dave Boren, Albuquerque, wants property management programs for apartment houses. Contact Fast- Fax.	idrms., eat si rpet, \$275 mo. 1 11 V(C.) HI ipancy. Townhiths, central ccel. cond., \$3 II the next
f. In dscaped of cin. at innic club. W churches. s lear kt ssell f agon, lavely 2 haths up why. Il conv	George Elkins, Albuquerque would like to contact anyone who has customers doing urban planning work using time-sharing. Please call George, or Fast-Fax.	BAFCRO
INIA Frojerti 256-2 10-im. Feds -1856 or edr - ork. hc 1/2 or e w/c Reas. rent. C 1; take rl. N	Judy Jehn, Cincinnati, needs a program to optimize the loading of trucks given variable customer orders, truck and package size. Contact Fast-Fax.	INTUA PICES II level, cen III, www.crp, ersnip 2 y 3-6900  A' SA CHIS'S MANC
Hwy, from R n R to 6611.*  The corrected B olio, brick s 2 full ciths, s 1, even sp or fillion see, f. per i cc. wo may Correction	Ben Gunter, Cleveland, is looking for programs for layout design or thermal analysis or hybrid thick- film integrated circuitss. Call Ben 8*344-6254 or Fast-Fax.	vailable for all Willia isb of ass with all association only \$50 o. sc times in the pl. for ill-ir her an all with the sc times and times and times all times are times and times and times all times are times and times all times are times and times are times are times and times are times are times are times and times are time
Air, iv. r . c kilch	J.J. Richard, Meridan, wants Box- Menken experimental design application. Contact Fast-Fax.	contac to M

## FAST-FAX



September 1, 1970

## MULTIPLE MARK I FILE TAPES

Dinu Martin, Mark I Engineering, has provided a program which will list and punch tapes for multiple Mark I programs or files. He has implemented a clever use for the Mark I Numerical Control Tape, NCT, command. Get a paper tape listing of the programs START\* and LIST\*\* from APEX. Store them on the MARK I. To operate, first type NCT — Mark I says READY. Then type RUN START\* (or whatever you rename the program on Mark I).

## TIME/SHARING PROGRAMS FOR SCHOOLS

For schools using time-sharing, Dartmouth College's 1970-71 catalog of available programs will be released September 15. The programs listed were developed at the Kiewit Computation Center and are compatible with the GE Mark II Time-Sharing System.

Customers may obtain paper tapes of source listings for the programs in the catalog. Cost is \$3 each to educational institutions and \$10 each for commercial institutions. Most of the programs are self-documenting. All are written in BASIC language, said Derrick Johnston, GE's man-on-campus. To obtain a copy of the catalog, write to Librarian, Kiewit Computation Center, Dartmouth College, Hanover, N.H. 03755

The EDUCAT catalog, prepared by Fast-Fax, will not be reprinted as most of its contents came from the Dartmouth catalog.

## LET THE BIG SHOW DO YOUR TALKING

Top management of manufacturing companies will be attending the Machine Tool Show and Production Engineering Show, running simultaneously in Chicago this fall. GE has the largest single display in the Production Engineering Show — 195 feet, Booth 1230.

GE Time-Sharing will demonstrate the CAM package. We'll have terminal there. CAM will help demonstrate GE's total capability in manufacturing.

Invite your customers and prospects to see us. The booth is meant to help you too. Production Engineering Show at the Navy Pier runs from Sept. 22 to Oct. 2, 10 to 6 daily (closed Sunday, Sept. 27). The Machine Tool Show is at the International Amphitheatre, from Sept. 21 to Oct. 2, open from 9-5 daily, except Sunday, Sept. 27.

Admission to both shows is \$5.00 per person. Your District or Office Manufacturing Specialist has admission forms. (The tickets aren't free, but it won't be necessary for your customer to stand in line to get into the show.) If you need more tickets, call Joe Domonkos, 8\*273-4659.

## FREE TERMINAL RENTAL FOR MACHINE TOOL SHOW

If your machine tool manufacturer customer is going to exhibit at the Machine Tool Show in Chicago, Sept. 21 to Oct. 2, he may rent a Datanet-730 terminal free for the show. Contact **Joe Domonkos**, 8\*273-4659, about free terminal rental for this big show!

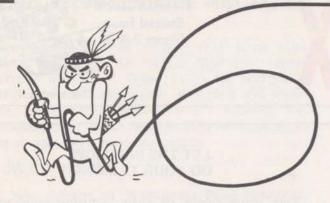
REMINDER--\$25 Bonus For Sale or Lease of DN-730 Terminal!

800 (9-70)

For Fast-Fax call: TTY:8\*273-4524 Brian Berger Vic Henschel 8\*273-4345 8\*273-4525 8\*273-4421



## PETRO/CHEM MARKETS



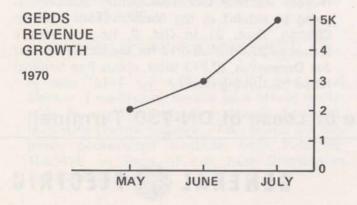
## THE RACE FOR LEAD FREE GAS

Major oil companies are feeling the ecology pinch. They are spending money to make lead free gas—and you should get your share! Humble has reduced lead content of ESSO PLUS to a minimum, but it has increased the base octane level. Standard Oil of California has added F310 which it claims lowers pollutant emission, and it'll be reducing the lead content ultimately to zero.

Shell has not announced a content of lead as yet. Texaco, has it on the West Coast. Sinclair will be announcing lead free gas within six months. And American is home free — it already has a lead free gas.

It's not too late — oil companies are under pressure, and they'll do what they must to stay competitive which means product acceptance. Continental Oil, Ponca City, Okla. is redisigning seven reformers. It is using GEPDS, Process Design System, to make lead free gas. It has four of the seven so far, and have burned up 3000 CRU's, reports Dick Chamberlin, Oklahoma City.

GEPDS is a top revenue earner — here's how the curve looks!



## SEMINARS PAY

APACHE! is on the trail — seven petro/chem seminars have been held so far in Midland, Texas; Buffalo, N.Y.; Los Angeles, California; Houston, Texas; New Jersey; Lake Charles, La.; and Corpus Christi, Texas.

Cities Service in Lake Charles, La., asked Ken McConnell, Houston, to give them a seminar on the use of GEPDS. John Erbar, Professor of Chemical Engineering at Oklahoma State (program author) and Tal Briddell, Application Sales, were the main presentors. CITGO's manager of Process Engineering and a few of his associates attended. The first week after the seminar, they billed \$1000 on GEPDS alone.

How would an extra grand a week look on your revenue figures? PDS could do it for you. Arrange for a seminar in your district with Tal Briddell. Want to know who the best prospects are? Read on.

### MANAGERS SENT PROSPECTS LISTS

April 10, Regional and District Managers were sent a list of every major petro/chem plant, natural gas plant and refinery in the U.S. Broken down by states, the list represents 50,000 engineers — all possible users of the P/C programs.

In addition, District managers were sent a list of 200 prime PDS prospects — their name, title, company, address, etc. On this are listed programs customers are now using and those which our P/C offerings should interest them. These are known computer-oriented firms; they're using NGPA, GECCS, or PDS.

District Managers were also sent the names and addresses of every major engineering design firm in the USA (organized by district). These firms are responsible for \$6 to \$10 billion worth of construction in the P/C area, plus the additional \$6 billion they are spending on the lead-free scramble.

A form letter to 10 or 12 of the firms on the list could turn up some takers for a seminar. And, seminars always mean more business.

## GEPDS\*\*\* VERSION 4 ADDED CAPABILITIES

Customers asked for additional thermo-dynamic capabilities in GEPDS\*\*\*, and now the improvements are available in Version 4. Version 3 had two thermo-dynamic methods, but Version 4 has 14. Version 4 even lets you specify your own thermo-dynamic method.

As Version 4 runs and calculates, it writes data to a binary file. If the program is interrupted, you restart it from the place it stopped — not back at the beginning.

It's interactive! The user can interact with the simulation during the calculation phase. He can evaluate, and change if he wishes, the process element data and stream data.

As the user is simulating the process, he can change any of the parameters and then selectively look at the results in pressure, temperature, enthalpy, stream concentrations, etc. in any section of the process. The selective printing capability and interactive processing use the inherent advantages of a time-sharing system. By varying individual elements of the whole, and observing key portions, the interaction feature lets the user make gross or minute changes to the simulation. When all indicators point to a satisfactory solution, then and only then does the user need an output of the total file.

Version 4 documentation, 909359B-1 will be available at no charge to those who have purchased GEPDS manuals.

## 1200 INQUIRIES FROM PRESS COVERAGE

Over 1200 persons requested information on P/C programs discussed in ads and articles in recent trade publications. Each was sent a copy of the APACHE brochure, Pub. 286050, which describes briefly 80 programs for the petro/chem targeted markets. Articles that drew the inquiries are reprinted for you in Pub. 302070. Be sure your prospects see this compilation. Additional copies are available from the Distribution Services, Scotia, N.Y.; order on form AF-110.



Tal Briddell, APACHE Chief

## APACHE! ONE NEAT PACKAGE

Getting all the appropriate material together for a sales call is often more difficult than the call itself... right? Well, it's all done for your petro/ chem call. In APACHE, Applications Package for Chemical Engineers. Each office has been sent this 2-inch notebook with all the available documentation, sales flyers, etc. in it. The tabs in this notebook are: GECEC\$, GEPDS, INDUSTRY AUTHORED PROGRAMS, HEAT EXCHANGER, GE LIBRARY PROGRAMS (online), GE OFF-LINE PROGRAMS, and GECMM\$. It's invaluable when making a sales call.

In addition to this neat package, you also have -

- DYSIM for transient analysis of plants and reaction kinetics
- Linear Programming for blending of fuels and mixtures
- CPM to assist scheduling of building projects
- SIXCUR\$ to arrive at a general equation to predict the performance of the plant.
- TPORT\$ a transportation program to schedule dispatching of trucks.
- APEX\*\* has 15 listable petro-chemical programs which you can give to your customers.
   The catalog also includes, PDSDM\*, a GEPDS demo run of a typical output (no calculations are made).

### TPØRT\$ DIMENSIONING

When redimensioning Transportation and Distribution Problem, TPØRT\$\*\*\*, Mark II, instead of typing CØMMØN, type DIMENSIØN. For example

100 CØMMØN A(M), G(M), NLV(M), LISTU(M), B(N), R(N), LISTV(N), LSV(N + 1)
110 CØMMØN LS(2\*M+N), X(M\*N), C(M\*N), NL(M\*N)

user should type:

100 DIMENSIØN A(M),G9M),NLV(M),LISTU(M),B(N),R(N),LISTV(N),LSV(N + 1) 110 DIMENSIØN LS(2\*M+N),X(M\*N),C(M\*N),NL(M\*N)

Thanks Din Kurawadwala, Applications Development Operation

## **ECONOMIES FOR JOINT ORDERING IN STRESS\*\*\***

STRESS\*\*\* users must give attention to member joint ordering. In a recent large problem, a minimal effort at efficient ordering reduced the cost of the run by 1/6 of the sloppy run cost. Users should be concerned with developing a

good numbering scheme. For discussion of economies, see Structural Engineering System Solver, STRESS\*\*\* documentation Pub. 908344A, pp. 6-8. Thanks Boman Irani, Applications Development Operation.

## NEW DIMENSIONING FOR LINEAR PROGRAMMING

The FORTRAN version of Linear Programming, LINEP\$\*\*\*, is now compiled on the Mark II system. Regarding redimensioning, it will automatically redimension the data matrix and you need not type the following line:

100 CØMMØN A(M + 2), II(NN)

as given in Linear Programming Methods User's Guide, 811248A, p.5

## NOW DOUBLE PRECISION LP

A double precision LP program, DLINEP\$\*\*\*, is now on the Mark II System. The program runs exactly like LINEP\$\*\*\*. DLINEP\$\*\*\* will automatically redimension the data matrix and has the following limitation:

 $(M + 2) * (NN + 2) \le 3900$ 

where M is the number of constraints and NN is the total number of variables, including surplus (if there is any).

Being double precision the program does not have the round-off errors and is highly reliable. Thanks Din Kurawadwala, Applications Development Operation

## FORTRAN TEST WITH UNIQUE CODING

Here's another FORTRAN test. This one by Dinu Martin, Mark I Engineering. He took 75 of Judy Jehn's questions from FTEST\* (and 25 of his own) and combined them in a novel programming technique. Try the quiz as Dinu's guest—call 8\*271-1071,

W99425 XX READY. EXE FQUIZZ

Then take a look at how short the program really is by listing FQUIZ and MESSED. Is this a coding idea that you can use?

### SUBSTITUTE 20-PERIOD PRO FORMA

Joan Wood, Long Island: Do we have a program for a 20-period pro forma? . . . . Sorry we don't. Maybe someone in the field has one they'd like to send us. John Canning, Applications Sales, says run FINAN\$ twice, using the 10th period data as input for the second run.

### STEAM TABLES ON MARK II

The 1967 IFC-ASME Steam Property Tables are on the Mark II FORTRAN Subroutine Library. Fifty-two subroutines will produce exactly the same numbers you'd find if you looked up the properties in tables 1-6 and 8. The routines may be called individually, or they may be imbedded in a statement. For example, for the calculation of evaporation enthalpy, HEVAP: HEVAP=HGT(T) - HFT(T) For a complete list of the routines and description of the arguments, call STMIFC\*\*\* and type RUN.

Customers should be able to use these routines immediately after obtaining a printout of STMIFC\*\*\*, says Ed Woll, Applications Development Operation.

Customers who should be interested include manufacturers of steam boilers, heat exchangers, steam turbines, steam pumps, steam valves and steam pipes, and public and private utilities, shipyards, and oil well drillers who use steam in the extraction process.

These routines have no accuracy limitations as do the prior steam property routines. The prior routines will be maintained on the system.

## SELECTIVE PRINTING IN DCØGØ\$\*\*\*

The double precision Coordinate Geometry package (DCØGØ\$\*\*\*) has a new SELECT command that permits selective printing of program output. The command has nine options which let you define which commands, input data and output you want printed. The new command is operative when you're using the FILE command — not for use when input is from the terminal.

CØGØ\$\$\*\*\* read/write reminder: DUMP1 writes points from the coordinate table, but it first decides whether the file should be scratched or appended. KNOWN1 reads points from a file and changes the read-write mode of the system to the read mode. SCRATCH scratches a file and changes the read-write mode of the system to the write mode. CØGØEXP\*\*\* discusses reading and writing files and the new SELECT command.

Fast-Fax has two informative letters on the above topics from Bob Nelson, Applications Development, and will send you copies upon request.

## GEPAC30 ASSEMBLER SUPPORT SOFTWARE

General Electric Corporate Engineering has made available time-sharing programs on Mark II for use with the GEPAC30 Assembler, a small process computer. Three programs are involved: 1) an assembler, 2) a simulated general loader and, 3) a conversataonal debugger. Additional utility programs are provided for entering source tapes, printing listings and loading tapes.

This package is on all Mark II Systems and the Network in the Datanet Software Services Library (DSSL). You can run these programs from any Mark II catalog, says Clarence Selin, Applications Sales.

Your own demos or seminars must be done from a QØ1 catalog; the QØ1 catalogs are on every Mark II System. For documentation, demos and answers to questions contact:

Dr. Harold R. Moore General Electric Corporate Engineering Building 36-621 1 River Road Schenectady, N.Y. 12305

Dial Comm: 8\*235-5657

## ISD DOCUMENTATION

## IS YOUR OFFICE LOSING PUBLICATION REVENUE?

Distribution Services reports that some sales offices are failing to include their cost center number on MF-33 Order Form for chargeable publications. Please review all orders and insert the appropriate number, if it's missing. Remember, your office receives 50% revenue credit for all manuals sold to customers.

## NOW AVAILABLE

A new edition of Publication Price Schedule, MF-34R (9-70), may be ordered from Distribution Services, Scotia, N.Y. In it are instructions to customers to route orders through their local time-sharing sales office. ONLY THOSE PUBLICATIONS SHOWN ON FM-34R and supplemental weekly reports (yellow sheets) are to be ordered on MF-33.

## NO CHARGE FOR DISCONTINUED PUBS

For non-chargeable publications, use Order Form AF-110. Publications not in MF-34R, other "no charge" items and sales promotion material should be requested on form AF-110. Among these are:

Zero-One Integer Linear Programming, Mk I	AR-6
Paint Formulation, Mk II	AR-7
3-Phase Fault Studies, Mk II	AR-12
Capital Equipment Investment, Mk II	AR-14
CPM Graphic Report Writer, Mk II	AR-15
Curved Bridge Geometry, Mk I	801206
FORTRAN Reference Manual DS	803213
Expense Budget Preparation, Mk II	FT911377
Algebra I, Teaching Guide, Mk I	903207
Algebra II, Teaching Guide, Mk I	903208
Trigonometry, Teaching Guide, Mk I	903209
Physics, Teaching Guide, Mk I	903210

Questions concerning ISD documentation distribution should be directed to Norm Otis, Documentation Unit, Bethesda, Md. or call Dial Comm 8\*273-4622.

## LIST OF SALES OFFICES WORLDWIDE

A new "LIST OF LOCATIONS" of General Electric Time-Sharing Service sales offices worldwide is now available, says Minnie Ferguson, Marketing-Communications. For copies of this handy pocket-sized brochure, order Pub. No. 108047E on form AF-110, from Distribution Services in Scotia, N.Y.

## **NEW APEX\*\* CATALOG**

A copy of the new APEX\*\* catalog listing of programs available on Network GPØ53 is enclosed with this issue of FAST-FAX. Forty-eight new programs have been added since the first catalog was prepared. If you would like extra copies of the APEX\*\* catalog, August 1970, contact Fast-Fax. Most programs are on the Ø53 catalog; those less frequently used are stored on paper tape in Fast-Fax files.

## **NEW ON APEX\*\***

Investments Portfolio Analysis

PRAN1\*, PRAN2\* Programs examine securities or assets in a portfolio and prepares a report showing present market value, gain or loss over purchase price, current projected income, yield based on market value and yield based on cost. BASIC, Mk II, documentation available. Thanks, Don Frye, Sacramento, Calif.

CLASSIFI	ED ADS	SE	PT. 1, 1970
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## FAST-FAX



World Leader In Time-Sharing Service

STATISTICS Special Issue

September 15, 1970



Don Bishop, Pittsfield, received the largest terminal bonus check — \$225 — given to date, is commended by Stan Brucker, Mgr.-Eastern New York Branch. He has had contracts signed for nine Datanet-730 terminals by GE Ordnance Systems, Pittsfield, for use in all its functions — Engineering, Finance, Manufacturing, etc. All the 730's were in place last week.

Ahead of Women's Lib (equal with men movement) is Judy Jehn, Dayton, who received a check for three terminals lease/buy contracts... that's \$75! Others who earned a \$25 bonus (or more) for sale or lease of DN-730 terminals include:

Toni Tamorelli, Philadelphia Gerry Grover, Pittsfield Buck Wise, Cincinnati Bob Manning, Atlanta Mac McKee, Newport News Dick Beldon, York, Pa (2) Jim Case, Portland Jim Kaufman, Cincinnati Bill Porter, Greenville Ron Nutter, Denver Jim Gyory, Bethesda (2) Judy Roub, Bethesda George Laraia, Teaneck Don Graves, Meriden Jack Novick, Dallas Richard Chamberlin, Tulsa Dick Burke, Baltimore

A \$25 bonus for each DN-730 terminal sale or lease will be given until January 1, 1971! Don't miss this opportunity to increase your revenue and easily earn \$25.

## "THERE'S NO WAY TO GET CONTROL-SHIFT L ON THIS TERMINAL"

It's a common complaint in these days of terminal proliferation. We were trapped into calling the characters CONTROL/SHIFT L,M,N,O because that's the way they were generated on TTY's — but new terminal makers didn't choose to put the function on these keys. Instead, most have —

Official ASCII Name
File Separator (FS)
Group Separator (GS)
Record Separator (RS)
Unit Separator (US)

TTY Name Control/Shift L Control/Shift M Control/Shift N Control/Shift O

To help you remember the official ASCII names, notice that they are in alphabetic order, just like LMNO. When you're searching a new terminal manual for the non-printing characters, look for FS, GS, RS, and US, advises Bob Seaton, IND.

### DYSIM FURTHER IMPROVED

Previously a zero E2 input to the divider block, or an attempt to PLOT the output of a constant block aborted the program with the system diagnostic DIVISION BY ZERO....

Now DYSIM checks for these conditions. If they exist, the user is given a program diagnostic, and the program does not abort. This enables the user to make appropriate alterations without reloading the input file.

ANALG\$ users are strongly urged to switch to DYSIM — the files are compatible — DYSIM has more features and is more economical in most cases. And, DYSIM documentation, 005417, is much more extensive, says Fred King, Applications Development Operation.

800 (9-70)

GENERAL ELECTRIC

## STATISTICS



Cal Cillay of the Applications Development Operation has assembled for time-sharing users of statistics the list of applicable programs, routines, and other associated information. For the user this compilation will provide him with a broad base of the many uses time-sharing offers in statisticial applications. Cal is one of those developing and supporting statistical and mathematical programs for the Mark II Library.

Mike Mash, Bala Cynwyd: What are the limits of number of observations for MREG\*\*\* and STAREG\*\*\*? - MREG\*\*\* Stores the input data in core and consequently is limited to 120 observations. STAREG\*\*\* rereads the input data from a file each time it is needed and consequently is not limited by any feature of the program for the number of observations. STAREG\*\*\* does double precision calculations and makes internal checks on the computation of regression coefficients - offering greater precisions, so it is more expensive to run than MREG\*\*\*. STAREG\*\*\* checks the condition of the matrix when it calculates the regression coefficients, but MREG\*\* does not. The use of MREG\*\*\* with data points fewer than 50 observations with only three or four variates should cause no trouble - but when the number of observations increases beyond 50, one should tend to use STAREG\*\*\* to gain its added flexibility and precision.

## EVALUATION OF A CONVOLUTION INTEGRAL

The "cumulative distribution function" for a variate x that is the sum of two independent variates is obtained by a convolution of the "cumulative distribution functions" for these two variates. When a definite double integral is obtained for the convolution, then for a specified value of the variate x the "cumulative distribution function" for the variate can be numerically evaluated by Gaussian quadrature using subroutine GAUSSN.

## **NEW PROGRAMS**

ONESAM\$\*\*\* for summarizing and analyzing univariate data.

MARK II. Supported by Din

Kurawadwala (8\*293-4224) and documented in pub.

003401.

WEIBL\$\*\*\* for reliability analysis by the Weibull distribution, MARK

II. Supported by Bob Nelson (8\*273-4586), ask Fast-Fax

for FT910373.

NLFIT\$\*\*\* for generating a least squares

fit of a non-linear curve to data with up to 5 independent variables, using the Marquardt algorithm, MARK II. Supported by Bob

Guillette (8\*273-4462) and documented in pub. 005419. for graphical presentation of data in frequency tables,

histograms, bargraphs, and graphs of cumulative distributions, MARK II. Supported by Din Kurawadwala and documented in pub.

008840.

DATADISPLAY

**PACKAGE** 

FOSTR\$\*\*\* for stepwise regression MARK II. Supported by Rob Ruzicka (8\*273-4469), with

documentation in prepara-

tion.

STAREG\*\*\*

for multiple regression, using double precision arthmetic, MARK II. Supported by Cal Cillay (8\*273-4469) and documented in pub.

807232B.

### ONESAMS SUCCESS STORY

Gil Case of Long Beach reports that an oil company used ONESAM\$ for analysis of production records from a well. The customer estimates that the company saved \$50,000 as the result of a business decision based on the ONESAM\$ analysis.

### SOURCES OF LIBRARY PROGRAMS

As you can see from the insert in this issue of FAST-FAX, the GE time-sharing library contains a wide assortment of programs and subroutines for statistical applications. Who developed these programs?

The man who holds the record for contributing the largest number of programs is Bob Mall of GE corporate headquarters. He developed many of these programs as his contribution to volumes 3 & 4 of the Mathematics for Management Series. (On request FAST-FAX will send you a "Statistics Bibliography" that gives price and address for ordering these volumes.)

The man who holds the record for contributing the most lines of programming is Tom Green of GE Space Division. His contributions include MREG1\$, MREG, STAREG, STAT1\$, ANVA1, ANVA5, ORPOLY, and many others.

The MARK II subroutine ERAN for sensitivity and error analysis of a mathematical model was originally developed as a package of MARK I programs by J.M. Miller of the GE Silicone Products Department and W. B. Nelson of the GE Research and Development Center.

The listable programs CHICON and MCREL2 and the decision evaluation program DEPR were developed by G.J. Hahn (a co-author of "Statistical Models in Engineering," Wiley) at R & DC. The new MARK II subroutine NLSQ for nonlinear least squares curve fitting using the Marquardt algorithm was developed by Tom Green and John Kurzenknabe at the GE Space Division.

The MARK II subroutine LSQMM (and the double precision version DLSQMM) to give a least squares or min-max fit was developed by Marceau Martin of the Space Division.

Floyd Lilley of the Space Division developed the MARK II subroutine MTCHI (and the double precision version DMTCHT) for using the Cholesky square root method to invert a positive definite matrix commonly arising in regression computations.

## MULTI-FACTOR ANALYSIS OF VARIANCE

Recently a customer needed to have a 7-way analysis of variance. The MARK I programs MANV2\$/MANV3\$ (Pub. No. 807230) for generalized analysis of variance produced the results he needed. If the customer had had only 2 levels for each of his 7 factors, he could have used the APEX\*\* program YATES\*. For multi-factor analysis of variance with many observations, and several levels per factor, but not more than 5 factors, the MARK II program ANVA5\*\*\* does the job.

## STATISTICAL ROUTINES IN THE MARK II LIBRARY

New Subr	outines (Documented in Pub. 807231B)
ERAN	for sensitivity and error analysis of a mathematical model.
DEVIDO	

REXPO	for generating random numbers ac-
RGAMM	cording to the exponential, the
RPOIS	gamma, and the Poisson probability distributions.

CHISQ	for computing probabilities and frac-				
	tiles	for	a	chi-square	probability
	distri	butio	n.		

FDIST	for computing probabilities and frac-
	tiles for the F-distribution.

ERFC	for evaluating the error funct	ion.
------	--------------------------------	------

NLSQ	for generating a least squares fit of a
	non-linear curve to bivariate data,
	using the Marquardt algorithm.

Nancy Lipman and Dick Beldon: Our users report they get incorrect results from options 3, 4, and 5 and the multiple correlation in option 2 of STAREG\*\*\* (no intercept case) when requiring that the fit pass through the origin. How come? — Users get correct answers only if the mean for each of the variates is zero. The correct output for options 3, 4 and 5 can be obtained by running with the same data using the option for the intercept case.

## STATISTICS REFERENCES

Retention copies of two bibliographies are available from R & DC. They are: "An Updated Categorized Bibliography of Books on the Application and Theory of Probability and Statistics," TIS 69-C-342, and "A Categorized Bibliography on Decision and Risk Analysis," TIS 69-C-189. These reports were compiled by Gerald Hahn and are available from Distribution Unit, Building 5 — Room 237, General Electric Company, P.O. Box 43, Schenectady, New York 12301.

The STATOGRAM newsletter, a bulletin for users of statistics, is published periodically by the General Electric Research & Development Center in Schenectady, N. Y. Prepared by Gerald J. Hahn and Wayne B. Nelson, Statisticians, it also has material from other individuals within the Company. Cal Cillay, ISD Applications Development Operations, recently contributed information on the time-sharing Data Display package (STATOGRAM 18-3).

Some of the most popular issues of the STAT-OGRAM Newsletter still available are:

- 11-2 The Distributions of Statistics
- 13-2 Statistical Analysis by Monte Carlo Simulation
- 15-2 ERAN: A Time-Sharing Program for Statistical Tolerancing in Engineering Design
- 15-4 MANVA: A New Tool for Analysis of Variance on Time-Share Computers
- 18-1 Which Statistical Interval Do I Use? Confidence, Tolerance, and Prediction.
- 18-2 How Abnormal is Normality?
- 18-3 New Time-Sharing Library Packages for Data Display and Summary Statistics Provide a Wealth of Information

Titles for the other STATOGRAMs cited on the following coupon will be supplied on request to FAST-FAX. Any AR or CAS who has users with statistical applications will surely want to be on the STATOGRAM mailing list. Send the coupon to

General Electric Company R & D Center Distribution Unit Bldg. 5, Room 237 P.O. Box 43 Schenectady, New York 12301

### For the following address

Information Service Department General Electric Company

- Put me on the STATOGRAM Newsletter mailing list.
- Send me the R & D Center Resource Bulletin on Probability, Statistics, and Applied Mathematics.

## Circle desired back issues of STATOGRAM Newsletter.

8-2	10-1	12-1	13-2	15-2	16-3	18-1
8-3	10-2	12-2	13-3	15-3	17-1	18-2
9-2	11-2	12-3	14-1	15-4	17-4	18-3
9-3	11-3	13-1	15-1	16-1		

## DICK SHARMAN DISCUSSES TERMINAL BONUS PLAN

- Q. What does "swap-out" mean?
- A. A "swap-out" is a terminal replacement for maintenance purposes only.
- Q. What is a "short term paid consignment"?
- A. The short term paid consignment was conceived to provide more complete customer service and enhance customer relationship. It provides for the use of DN-730 terminals on a short term basis for seminars, conventions, etc. Cost to the customer is:

Installation & removal	\$70
Daily charge:	
Mobil	\$10
Portable	\$12

No terminal bonus is paid for short term consignments.

- Q. My customer was leasing a DN-730 terminal and was taken advantage of the purchase option. Since I have a contract for the sale of a terminal, do I receive a terminal bonus?
- A. No. The exercise of the purchase option is a sales feature for the customer's benefit. The terminal bonus is not applicable since the transaction does not represent a "new" sale or lease.
- Q. My customer is a high school. The terminal was removed for the months of July and August, and it will be reinstalled in September. Am I entitled to the terminal bonus when it is reinstalled?
- A. No. The temporary "de-installation" was made for the customer's benefit. reinstallation does not represent a "new" sale or lease.
- Q. I have a potential lease of 13 terminals to one of my GE accounts. My customer is planning to replace telephone company leased terminals with our DN-730 to enhance his cash-flow position. Will I receive a \$25 bonus for each of the 13 terminals?
- A. Yes, your total TERMINAL BONUS would be \$325. So, GO!!!

## IMPROVED ECONOMIC FORECASTING PACKAGE ON APEX\*\*

An improved Economic Forecasting package is now on the APEX\*\* catalog. Tom Choate, ISD Marketing, and W.H. Daeger, Dartmouth College, have updated the programs. Four basic programs help the user in decision-making.

CHOT1*11	applies least-squares regression to estimate a linear trend line.
	It will also estimate a seasonal pattern which, when combined with the estimated trend line, will forecast for future periods.

CHOT2\*22 will smooth nontrending timeseries data to predict future values; can estimate seasonal patterns.

CHOT3\*33 smoothes data with a linear trend component. Seasonal patterns around the line can be estimated to forecast future values.

CHOT4\*44 smoothes data with an exponential trend component; can estimate seasonal patterns around this line to forecast future values.

The package incorporates four plotting programs. Also in it are the off-line Time-Series Forecasting programs, FCST1\$, FCST2\$..... (FCST3\$ was removed from off-line because of small algorithm error). For documentation of this Economic Forecasting package, call Fast-Fax.

### ALPHABETIZE CATALOG

Alphebetize your (or customer's) catalog file listing and save manual search time with CATAB\*. User makes tape of his CATLOG and enters this as a DSM file. CATAB\*, a Mark II FORTRAN program is self-documenting, and is in the APEX\*\* catalog. Thanks to John Sliter, Empire District.

### YOUR IDEAS FOR "HOT LINE" LOGO

The GE information logo, "Hot Line To Computer Power" which is placed on the front of terminals is to be updated. If you have recommendations, send a copy of the complete sticker with your remarks to Bob Richardson, Manager-Communications, Marketing, at headquarters. Please send this information before September 30.

## PRINTED CIRCUIT BOARD DESIGN

Ben Gunter, Cleveland: The Electrical-Electronic Product Council has targeted computer-assisted design of printed circuit boards as a promising area. We would like to know what exists, in the field, how it is used, and what is needed by customers. Two general types of packages are often requested 1) optimized component layout, 2) artwork generation.

We need inputs on 1) present customers who have written similar programs, 2) customers and prospects who have requested such applications, and 3) potential DSS authors of these packages. Send to Ben Gunter.

## COMPUTERS IN EDUCATION

## DEVELOPMENTS AT DARTMOUTH

Professor Arthur W. Leuhrmann has been appointed the first director of the Computer Educational Materials Development Center (CEMDEC) at Dartmouth College. CEMDEC will support major projects such as COEXIST — to develop test material for courses in Math, Physics and Engineering; and IMPRESS — which teaches social science students how to extract information from large data bases.

To place your school on the mailing list for documented developments write to Professor Arthur W. Leuhrmann, Director CEMDEC, Kiewit Computation Center, Hanover, N.H. 03755.

## **TEACHING AIDS**

Two monographs are available to schools upon request: Introductory Computer-based Mechanics and Computer-based Physics Anthology. No charge for these items.

A teacher can look at these publications and determine if they are of value in teaching the use of computers for mechanics and physics. Quantities of student material are also available at nominal cost.

Address your request to Dr. Ronald Blum, Commission on College Physics, Department of Physics and Astronomy, University of Maryland, 4321 Hartwick Rd., College Park, Md. 20740.

### IT'S BUDGT\$\*\*\* TIME

From now until early next year managers will be busy preparing their expense budgets for 1971. BUDGT\$\*\*\* can ease and simplify that task, said John Canning, Applications Sales. This is the program featured on a recent David Frost TV coverage of time-sharing. Documentation is FT911377 — no charge for this one — order on form AF110.

## BE A CAD!

CAD means Computer-Aided Design, and Lee Beyer, Application Sales, has a new presentation package that will help you promote CAD-ery with your Engineering prospects and customers.

Lee's package includes an entirely new slide show, script, presentation tip sheet, sample agendas, and mailers. The slide show, contains new material on NLNET\$ and LOGIC, reflects the program change from ANALG\$ to DYSIM, and has updated slides on ACNET\$, DCNET\$, ECAP\$\$, and TRANS\$. As new E/E programs are released, says Lee, additional slides and script changes will be available.

If you're using the old presentation, replace it with this new one. If you've never used the old pitch, now's the time to get going. Order the new package from Minnie Ferguson in Bethesda. The cost is \$40 — a bargain.

Go ahead, be a CAD (promoter)!

	WANTED	and an
BUS OPERATO FIERCE FOR MA TPANE A S.E. (Car CAR W. FHE AUTH BOOK BY TO TIME AND THE AUTH BOOK BY TO THE BOOK BY THE B	Jim Mason, Manhattan, has a cus tomer interested in programs which investigate the effect of electrica surges due to lightning (traveling waves). Contact Jim, 8*222-3631 or Fast-Fax.	of Metro area. ust e own te, 2-2732 s, housean area
Mr. 434- CAR: ENFER rien. See M Sc ol, Rie. R At Te.	Jim Parkhurst, IISO, would like a Mark I real estate selection pro gram. Contact Fast-Fax.	Charles Charles Committee
NIH w oject, Supt., Mr. R CONSTRUCT	AVAILABLE	EL OIL
CA SPENTER Only Do me tende L. Wall Cone Forces CALPENTER Lation 199 2 35. CALPENTER AD. Project, Or or 5 7. LAPP (NTER Only 109 m GT 350 All	PA300 slides and casette tape — or capital budgeting, marketing pricing, etc. Illustrates problem and solution using PA300. Contact Norm Wilson, Teaneck (Eastern Region); Ed Gorsuch, Cleveland (Central); or Joyce Landry, Torrance (Western).	ean ariving recital requirement as neavy equipment and Mr. Purerual opportunity  n, hangers, fin- Call 557  MENT SALES sis on undo Wash, area.
The same like of the same red, to uar yr, ro 50.	FORTRAN subroutine to set tab on the Terminet-300 terminal TB300* now on APEX**. Thank Dave Comroe, Teaneck.	r., for jobbing steady, other

## FAST-FAX



October 15, 1970

## STUBS\*\*\* READY

Single/Double Stub Impedance Matching, STUBS\*\*\*, is now ready for those microwave applications within the Electrical/Electronic targeted markets. The Mark II program performs single and double stub tuning of transmission lines, says Norm Thurston, Engineering & Scientific Applications.

User's Guide, 004403, has some of the printout examples incorrectly shown as STUBS\$\*\*\*... there is no "\$" sign in the library program name.

## PAPER FOR TN-300

Paper for the Terminet-300 terminal is often difficult to obtain. To avoid embarrassment of having your TN-300 customer without a supply, find a local source for paper now. Try Moore Business Forms. If you cannot find a local supplier, R. L. Sharman, Manager-Terminal Devices, suggests you contact:

Computer Rolls Company P.O. Box 19087 3214 Maxroy Houston, Texas 77024

## LIBRARY ADDITION

BANKS\$\*\*\*, is a new off-line library program for analyzing the historical financial statements of banks and other financial institutions. BANKS\$ will also convert foreign currency to U.S. dollars. The program was written for a large commercial bank on the West Coast by **Phyllis Mudrick Cohen**, Los Angeles. Ask FAST-FAX for documentation 527090.

## G.L.A.S. PACKAGE IMPROVEMENT

Journal Entries Edit Program, JEDIT\$\*\*\*, now allows the "pre-editing" of Journal Entries Files created in the "Fixed-Form" format as well as files created in the "Free-Form" format.

During the running of the program (JEDIT\$), the user will be asked by the computer, IS THE JØURNAL ENTRIES FILE IN "FIXED-FORM" FORMAT? and the user responds by entering "YES" or "NØ". Thanks Ray Porter, Applications Development.

## PLAY IT SAFE - PURGE

Karyl Andolina, Pittsburgh, recommends to her Mark II customers that they use the command PURGE instead of UNSAVE. PURGE goes directly to the disc and purges the files you specify. When you UNSAVE, you may accidentally wipe out something in your working storage. And PURGE is faster, too. You can specify several program names separated by semicolons, rather than calling each program separately to UNSAVE.

### WHAT'S HAPPENING ON NETWORK

A number of Time-Sharing customers have been enjoying Network service for several months. Now would be a good time to gather specifics on their applications. What others are doing is a great selling tool. Would you take a couple of minutes and jot down the customer and types of applications. Send this information to Nick Kefal, Headquarters Sales. As soon as it is compiled, it will be sent to all branch offices.

800 (10-70)

GENERAL E ELECTRIC

## >> TECHNICAL TIPS <<

## MARK II BASIC Simulation of Multiple Statements Per Line

In grouping arithmetic operations with parentheses in MARK II BASIC, you can simulate multiple statements per line such as is done in MARK I FORTRAN. In the first example the statement

Let 
$$Y = (X=B*C) + (Z=C/D) + X/Z$$

actually performs three calculations, Y, X, and Z. The compilation is performed from left to right, so the above statement is equivalent to the following three statements:

Let X = B\*CLet Z = C/DLet Y = X+Z+X/Z

This next example shows how to use this feature with multi-line defined functions. Suppose you have a program which has the following defined function

DEFFNP (A,B,C) PRINT A,B FØR I = 1 TØ C PRINT NEXT I LET FNP = 0 FNEND

and a statement in the program, such as

LET Y = 
$$(X = B*C) + (Z = C/D) + X/Z + FNP(X,Z,W)$$

First, the three calculations are performed as in the first example, and then the values of X and Z are printed and the teletypewriter paper is advanced C lines by function FNP. This is all done in one statement!

- Joe Snyder, IND

## DOUBLE PRECISION LINEAR PROGRAMMING

"A double precision linear programming routine has been placed in the FSL (MARK II) which can be called as a subroutine from any program. The calling sequence is as follows:

CALL LINEP(FILE. VAR. PRICE. IND)

where

FILE - input data filename

VAR - singly subscripted variable which will contain the solution upon return

PRICE – upon return contains the value of objective function

IND — =0 solution exists, 1 solution unbounded, 2 no feasible solution

"The input data files for the FSL subroutine LINEP and the library program LINEP\*\*\* are the same except for the following changes:

100 SAMPLE PRØBLEM 110 1,1,4,2,0,2,4 170 1,-1,-1,1 180 END FILE FØR LINEP\$\*\*\*

110 1,4,2,0,2,4 170 1,-1,-1,1 FILE FØR LINEP (FSL)

- The first identification line and the last "END" line in data file for LINEP\*\*\* are not needed in the data file for LINEP.
- 2) The first data (LEVEL) in the second line in the data file for LINEP\$\*\*\* is not needed in the data file for LINEP.

Din Kurawadwala, Eng. & Sci. Appl.

## GEPAY\$\*\*\*, GENERALIZED PAYROLL SYSTEM

## PAYROLL CHECKS

GEPAY\$\*\*\*, a data processing application economically done on time-sharing, features payroll check printing. The correct check format is shown right. The one shown on Pub. 310080 is slightly inaccurate as the "Date" line (upper right) and the "Dollars" line are not required.

It is suggested you make a copy of this illustration and include it with existing sales promotion flyers when presenting GEPAY\$\*\*\* to a prospect.

## 

## TAX CODES

An information files, GETAX\*\*\*, which contains an up-to-date listing of all state/city/and local tax codes used in GEPAY\$\*\*\* is now on all Mark II Systems.

GEPAY\$ User's Guide, 006426, contains a listing of all tax codes as of the publication date. However, GETAX\*\*\* will reflect additional tax codes as they are implemented by state legislatures.

It is recommended that all new users list GETAX\*\*\*.

## **EDIT PAGE MODIFICATION**

Now paper tapes produced at the same time the EDIT PAGE command is executed may be subsequently read back into the system. Only the actual text of the user's file is read to memory. All extraneous output associated with EDIT PAGE listings are followed by a delete character. Also rubouts normally associated with the beginning and end of a paper tape are not read in.

With this feature, users can punch a tape and get a neat readable listing at the same time.

FAST-FAX has mentioned BASIC and/or FORTRAN programs that do the same thing. However, a significant savings and convenience results in doing this at the system level. Thanks Ted Truex, IND.

## COLORADO AND NEW MEXICO ADDED

GEPAY\$ now includes the automatic calculation for state income tax for Colorado and New Mexico. GETAX\*\*\* includes these tax codes and a suggested procedure for the Denver, Colorado, "Occupational Priviledge Tax" calculation.

## NEW D.A.S. SHORT TERM LEASE

Mark I customers may sign for 6 or 12 months agreements for Dedicated Access Service (D.A.S.). Educational institutions may sign for 6, 9 or 12 months.

Prices for unlimited Terminal Connect Time, 10,000 CRU's free, and Program Storage Units at standard rates begin at \$900 per month in base cities.

During the first 90 days of D.A.S. agreement, you may add ports to initial contract within same time period as initial contract.

Educational institutions may add any number of ports at any time during the period of contract if schedule is agreed upon when contract is signed.

### CALLING DETROIT

The Detroit Time-Sharing District office and sales office Dial Comm numbers have been changed. Call 8\*361-3970 and for Technical Support it's 8\*361-3971.

In the Mark II BASIC Language reference manual, 711224, this explanation for the MARGIN statement (for more than 75 characters per line) should be added:

"The statement must appear before the program encounters any read, write, or image statements which involve character lengths greater than 75 per line.

Here is an example of the use of the statement:

MARGIN #N,M

where N is file designator (0 for TTY, 1,2,3,4, etc., for files), and M is the record length for an ASCII sequential file, or the number of characters to be printed at the terminal. M is subject to two conditions:

- (a) The maximum number of characters is 118 when you're asking the program to write to or from an ASCII sequential file.
- (b) The maximum number of characters is 158 when you're asking the program to compute output, or preparing image statements.

This is the **only** way that you can get more than 75 characters per line in BASIC."

Bruce Wilson, Documentation

### TECHNICAL TIP

There have been instances of file accessing problems resulting from inconsistencies in file-naming conventions imposed by different software subsystems. The permanent "fix" for this problem is being carefully considered and will probably employ both software changes and conventions or file naming rules. To avoid the file naming problem both now and in future use these conventions:

- 1) File names must be 8 characters or less.
- File names must begin with an alphabetic.
   Note: lower case alphabetic characters used in file names will be stored as upper case to allow access by upper-case-only terminals.
- Avoid use of special characters except FS, GS, RS, and US.
- Numerics are permitted but not as the first character.

Walt Cory, IND

CFVØL\*, a Mark I Cut and Fill version of CFVØL\$\*\*\*. Also, CFMTR\*, the same program with I/O in meters. Both programs on APEX\*\*. Thanks Al Garcia, Puerto Rico. For documentation, call Fast-Fax.

DYPLØ\* plots data output of DYSIM\*\*\*, Mark II FORTRAN. Documentation available from Fast-Fax. Thanks Heins Rott, Aeroflex Corp., Plainview, N.Y.

RANKS\*, a program for ranking a class of students by grade point average. Documentation available from Fast-Fax. Thanks Harvey Henson, Orlando.

CHMAT\* a driver program for double precision matrix inversion subroutine. (Gives exact results for the inverse of a Hilbert matrix up to order 8). Good Demo User has the option of inverting a matrix that 1) is a Hilbert matrix generated by the program, 2) is input in conversational mode at the terminal, or 3) is read from file (CHOO1\* is sample file). Mk II FORTRAN self documenting. Thanks Cal Cillay, Applications Development Operation.

## TECHNICAL TIP

When building numeric files, always use the space as the delimiter between data items, rather than the comma. In this way, BASIC and FORTRAN can both access the data files.

	WANTED	CT. 15, 1970
BUS OPERAT FIREC SOFE WMA TRAN a see Gai CAR W.SHE working con Tim and or ps. apply a we 7.75 N	Program to convert IBM 1130 FORTRAN to Mark II FORTRAN. If you know of one contact, John Marchetti, Philadelphia, or Fast-Fax.	b distr. has y-warehouse et- s of Motro area. ust se cwn te. 23332 s, h. Lean drea uffeur's lie, or ure depend ible ing. Pero 384.
III. Vd. or ir. 434: AV N. FER. See M. ol, Rte.	Steve Battory, Schenectady, wants programs for use by advertising agencies or media research. If available, call Steve at 8*235-9241 or call Fast-Fax.	ing plant, good ent. Apply 12 kville. Full to ever to Drug Store 50-28%. EL OIL
Supt., Mr. R CONSTRUCT CASTEINTER Only 139 me tende 1, Walt CASTE Fres CASTEINTER taston, top	Mike Farsaci, Syracuse, is looking for a PDP 10 simulator to generate compatible binary deck for Mark II. Contact Fast-Fax.	t Co. will need
PENTER DE L'ESTER DE L	A. Ward, Washington, wants a program to compute great circle distances. Contact Fast-Fax.	n, hangers, fin- l. Call ~ 100505 MENT SALES si; on judio Wash, area
rate January VI. rot O. A Supervis.	Hank Altemus, Bala Cynwyd, is looking for a program to do ultraviolet color matching. Has anyone put the ASTM Committee 13's card decks onto time-sharing? Contact Hank 8*243-3288 or Fast-Fax.	ressive young rate with philibenefits,

## FAST-FAX



November 1, 1970

## DATA MANAGEMENT SEMINARS LAUNCHED

Designing a Mark II data base was one of the major assignments for students attending the first Data Management Course held recently at Headquarters. Dinu Martin, course leader, discussed with the class back-up procedures, programming and storing duplicate files in gearing up and getting ready for large data base applications for time-sharing. Emphasized were file packing and structures. How to teach an elementary course on files was given considerable time for the field instructors.

This was the first of several Data Management courses to be given in the field as well as at Headquarters.

Completing the first course Randy Bracey, Washington Sales Office; Bob Cohen, Los Angeles; Bob Evanoff, Detroit; A. Friedman, BTL office; Harvey Henson, Orlando; Judy Jehn, Dayton; Diana Johnson, Dallas; Ellen Kistler, Manhattan; Margaret Windish, Meriden; Art Lee, Philadelphia; Tom May, Portland; Gary McIrvin, Cleveland; Jenny Munder, Chicago; Stan Nakamura, Palo Alto; Jim Rash, Reseda; Mary Ellen Romain, Teaneck; and John Sliter, Schenectady.

### **EUEO PROGRAMS IN NATIONAL MAGAZINE**

Mike Schermer, Albuquerque: How are we getting word to the electrical industry that the EUEO programs are available on GE Time-Sharing Service? ...October 1 issue of ELECTRICAL WORLD, page 115, has a nice big article about them. Show it to your utility customers. It's a magazine that serves the electrical industry.

## "INFORMATION NETWORK TECHNOLOGY"

Did you get a copy of Dr. George Feeney's talk yet? He gave a talk in Europe on "Information Network Technology" which discusses trends in network technology .. it's extremely interesting. If you want to impress the right people in a customer or prospect's place of business, leave them a copy of this talk. Available from Distribution Services, Scotia, N.Y., ask for Pub. 23801. Order on form AF110.

## MULTIPLE TAPES FROM APEX\*\* WITH EASE

Don Graves, Meriden, Conn. My customer wants 18 programs from the APEX catalog. Typing OLD, FILENAME eighteen successive times and waiting for programs is time consuming. What can you suggest?... After 5 p.m. call the program LISTR\* from APEX and type RUN. It will ask you for the files you want listed, then tell you to turn on the punch. If you can't stay around the office and watch the TTY, it will shut itself off 8 minutes after it has listed the last program. Each file will be separated with rub-outs, the program name and date is punched in readable letters.

## TEANECK, HIGHLAND PARK OFFICES MOVE TO EAST ORANGE

The ISD offices which were located in Teaneck, N.J. and Highland Park, N.J. are now both located at 33 Evergreen Place, East Orange, N.J. 07018. Until DIAL COMM numbers are available, you may reach them by calling the East Orange operator, 8\*223-8011 and ask for 672-0700.

800 (11-70)

For Fast-Fax call: TTY:8\*273-4524

8\*273-4345 8\*273-4525 8\*273-4421



## **DUMP COMMON FILES TO BINARY**

To save time when debugging a series of chained programs, here's a program (FASCOM) to dump COMMON to a BINARY SEQUENTIAL file.

It will not be necessary to run the whole series just to pass the data through COMMON to the routine with which you are working.

Just DUMP COMMON to a BINARY file in the program immediately before the one of interest using the DUMP subroutine shown below. You can then repeatedly run the program of interest without running the other programs in the series.

The dimension of the variable I in the COMMON statement is reached by counting two words for every filename, double precision, and complex variable; and one word for every alpha, integer, and real variables. The DUMP subroutine is called immediately before the CHAIN to the next program. The LOAD subroutine, FASCOML, is called before any other executable statement in the program to which it is chained.

## FASCØM

```
100
     COMMON FIL(10).ALP(15)
    COMMON A(10),B(20),C(309),D(15),H(12),I(27),J(34)
110
120
     FILENAME FIL
130
    ALPHA ALP
    CALL DUMP
140
150
    CHAIN"FASCOML"
160
    STOP
170
    END
180
     SUBROUTINE DUMP
190
    COMMON I (462)
200
     WRITE ("BINF")I
210
    RETURN
220
     END
```

## FASCOML

```
100 CØMMØN FIL(10),ALP(15)
110 CØMMØN A(10),B(20),C(309),D(15),H(12),I(27),J(34)
120 FILENAME FIL
130 ALPHA ALP
140 CALL LØAD
150 STØP
160 END
170 SUBRØUTINE LØAD
180 CØMMØN I(462)
190 READ("BINF")I
200 RETURN
210 END
```

- Dave Comroe, Teaneck

LNFOR\$\*\*\* QUIZ To complement Mark I's Learn Fortran, a new program is now available which checks a user's

knowledge of FORTRAN. List QUIZZZ\*\*\* for information. This is a part of the LNFOR\$ package, . . . no CRU charge for the program.

## BONUS CLAIMS RECEIVED FOR DN-730 TERMINAL SALES/LEASE (THRU OCTOBER 23, 1970)

Eastern Region		Central Region		Western Region	
Bell Telephone Labs	0	Cincinnati	6	Arizona	0
Baltimore/Washington Comm'l	3	Cleveland East	2	New Mexico	0
Washington Government	7	Cleveland West	2	Portland/Seattle	1
Total Capital District	10	Columbus	2	Rocky Mountain	3
	10	Louisville	0		-
Central New England	1	Pittsburgh	3	Total Mountain States District	4
Northern New England	4	T-1-15 - 10 - 15:-:	45	Berkeley	0
Southern New England	1	Total East Central District	15	Palo Alto	0
Total New England District	-	Philadelphia North	2	San Francisco	0
Total New England District	6	Philadelphia South	3		_
Highland Park	4		-	Total Northern California District	0
Long Island	0	Total Eastern Pennsylvania		Los Angeles	0
Teaneck	8	District	5	Orange County/Long Beach	2
T-1-1-1	-	Central New York	1	San Fernando Valley	0
Total New Jersey/		Eastern New York	11	San Gabriel	2
Long Island District	12	Internal Accounts	0	Total Southern California District	4
Manhattan Financial	3	Western New York	0		
Manhattan Industrial	3	TORRIGORIA CAMP		Dallas	2
	-	Total Empire District	12	Houston	1
Total New York Metropolitan District	6	Detroit	2	New Orleans	0
Atlanta	1	Indianapolis	0	St. Louis	0
Greensboro/Greenville	1	marapons	_	Tulsa	3
Orlando	5	Total Mid Central District	2	Total Southwest District	6
Total Southeast District	7	Chicago	2	Tatal Wasters Basins	14
Total Southeast District	1	Milwaukee	0	Total Western Region	14
Total Eastern Region	41	Total North Central District	2		
		Total Central Region	36		

## FAST-FIX

STRESS: Manual #908344A, Sample problem #1, plane truss, has errors in figure 9 (sketch) and sample data file. Load at Joint 3 is 200# rather than 100#, y-axis on member 4 should be down to left rather than up to right and roller at joint 7 should be vertical rather than horizontal. The sample data file line 420 should read:

### 420 7 FORCE Y

With these corrections in the data the results are correct. Please notify your customers who have this manual so that they can correct their copies. — Wayne E. Garber, Applications Development Operation.

JBSIM\$\*\*\* — The JOBSHOP scheduler and simulator has undergone a recent modification. It drastically reduces the CRU's required for the generation of large job schedules — John Hannah, Applications Development Operation.

## **OBJECT PROGRAM SIZE IN BASIC**

MARK II BASIC with PR28 now has three separate run-timers instead of two.

RUN-TIMER	LENGTH (WORDS)	CALLED INTO PLAY IF:
SMALL	4534	No MAT nor CHANGE is used.
MEDIUM	5384	MAT or CHANGE is used.
LONG	8350	If any of the new features of PR28 BASIC are used (PRINT USING, Binary Files, New Functions)

The maximum size object program in BASIC is 8576 words or 9408 words depending if you use matrix commands (or CHANGE) in your program or not.

— Joe Snyder, IND

## **BUDGT\$\*\*\* MODIFIED**

For users of the Expense Budget program, documentation FT911377, a file on the system, BEXP\*\*\*, explains a simplified input and an expanded report capacity — John Hannah, Appl. Dev. Opr.

## COMPUTER ASSISTED MANUFACTURING SELLING TOOLS

From a suggestion of the Manufacturing Product Council, promotion sheets and sales bulletins are available for GIVY1\$, Inventory Control, and FAME, Maintenance Scheduling and Control in addition to the User's Guides, reports Joe Domonkos, Applications Sales.

GIVY1\$\*\*\* User's Guide 002395 Promotion Sheet 312080 S/B 140

FAME\*\*\* User's Guide 009442 Promotion Sheet 323090 S/B 142

Order your promotion sheets from Distribution Services, 705 Corporations Park, Scotia, N.Y. 12302 on form AF110.

## ONESAM\$\*\*\* SUPPORT

Need some technical support for the ONE-SAM\$\*\*\* program? Dr. G.J. Hahn had a two-part article in "Journal of Quality Technology". The ONESAM\$\*\*\* Users Guide was cited as a reference. Limited number of article reprints available from FAST-FAX.

The STATOGRAM newsletters 18-1 and 18-3 (See FAST-FAX 95-32 p.4) are also helpful for technical support of ONESAM\*\*\*.

## **GECEC\$ STATUS**

To bring you up to date on General Electric Chemical Engineering Computation System, GECEC\$\*\*\*, Tal Briddell, Application Sales, provides the following:

- \* GECEC\$\*\*\* has been corrected and will not loop in Bubble Point and Dew Point Calculations
- \* The Distillation Tower section is alive and working!
- \* Months of effort have ended in a successful distribution program. Thanks to the skills of Dr. Joe Schmid, Jerry Lechliter and Ed Woll, Appl. Dev. Opr., to make GECEC\$ distillation fit using run-big.
- \* Documentation 910371 will be mailed to offices the first week of November.

## EUEO PROGRAMS REPLACE OLD EUSD PROGRAMS

Fast-Fax can no longer send tapes of the old EUSD programs to sales offices. Their value is very small at this point, because:

- EUEO (DSS) programs are a better reflection of what our product is now.
- 2. They're 5 years old, written in old BASIC. They probably won't run.
- If you give them to a customer, you will be plagued with requests to help him debug a program that was intended only as a demo.
- 4. The programs have had zero maintenance since they were written.
- 5. Documentation is not available.

## RESTART OPTION

Harvey Henson, Orlando: Do you think other CAS's in the field would be interested in a restart option? I have a routine that writes the output of a program to a file in a formatted fashion. With this method, if the terminal is disconnected, you don't need to recompute, just LIST the file at the user's convenience... Yes, Fast-Fax thinks CAS's would be interested in it. We've put the program on the APEX\*\* library under the name IMAGE\*HH with instructions in the first 12 lines. Fast-Fax can supply one-page documentation. Thanks Harvey!

CLASSIFI	ED ADS N	OV. 1, 1970
	WANTED	
Pkwy., Jehin Ctr	Information about sticky-back labels to go into pin-feed teletypes for printing mailing labels three up. What vendor makes them? Stock number? Call Ken Conroy, 8*288-4271 or Fast-Fax.	570×220E
AR W. P. GET WORK OF CONT. Tirr and on ps. apply at we 75° N.	Bob Cox, Teaneck, wants programs for infra-red spectroscopy and ultraviolet spectroscopy. Contact Fast-Fax.	iffeur's iic. or
Mr. 434-3 CAP ENFERS rien. See M St. ol, Rte. B at tle.	Programs used in waste disposal: silt rates in tanks, types and amounts of filters, etc. Call Howard Weidberg, 8*222-3507 or Fast-Fax.	ing plars, kood ant. Apply 12 kville. Full to over 1 Drug Stere
VIH project, Supt., Mr. R	AVAILABLE	EL OIL
Supt., Mr. R CONSTRUCT CALPTINIER Only 13p me tende t, Wall CC-1 Fores CALPENTER ADD. 15-Sect. Only 15p me GI SSM VI APT NATER ADD. 15-Sect. APT NATER AUTOS. McI. APT SEUR AUTOS. MCI. AUTOS. M	High level visibility of your com- plaints about the system or service through the TELL.ME on-line com- plaint system on Mark II. Call Fast-Fax for 6-page operator's guide, defining procedures, com- mand etc.	c Co, will need driven a fer the seas on. Applican friring frecal requirement as neavy equiplact Mr. Austral opportunity  n, hangers, fin- Call 374-385  MENT SALES
	PROFT*, optimizes selling price of product on basis of unit sales projects and cost inputs. From Fred Rasmussen, Signetics Corpthanks Ron Simon, Palo Alto. Call Fast-Fax for documentation (EDN reprint). Mk II BASIC on APEX** catalog.	MENT SALES sis on uddo Wash, aret ressive youn, rate with abil- Benefits,

## FAST-FAX



November 15, 1970



Do you have a question concerning data processing in the time-sharing environment? George Cofield has recently joined the Sales Support Unit as the Data Processing Specialist. He's ready to assist people in the field with problems concerning data processing, teleprocessing and interprocessing... those ISD products. You may call George on 8\*273-4625.

## MANUFACTURING SUPPORT

N/C classes for customer will be held in Cleveland: REMAPT, Nov. 16-18 and NCPPL\$, Dec. 14-18. Take this opportunity to sharpen your customers' skills in using time-sharing for N/C applications.

Reprints of the MODERN MANUFACTURING article which discusses GE's Computer Assisted Manufacturing offerings, especially GJSCH\$, General Job Scheduler, is now available, free, from Distribution Services, Scotia, N.Y. Ask for pub. 319090.

## "ADDITIONAL" ON-LINE SOFTWARE

BMFRA\$\*\*\*, continuous beam and rigid frame analysis, is now on Mark II systems. Documentation for this additional on-line software is available from Fast-Fax. Ask for 528090.

### FINANCIAL CUSTOMERS ON NETWORK

Below is a list of Network accounts in the financial area and the GE Representatives that service them. If you have a branch of one of these firms in your area not on Network yet, it may help you to contact the GE rep to find out what the customer is doing. If you have application information about one of these firms that you'd like to share with other GE reps around the country, send the information to Fast-Fax.

Customer	GE Time-Sharing Rep	Dial Comm
Ernst & Ernst	Barbara Bennett, NYC	8*222-3640
Haskin & Sells	Gary Martin, Los Angeles	8*432-5321
Lybrand Ross	Bob Cohen, NYC	8*222-3486
Price Waterhouse	Jim Thierl, St. Louis	8*326-4363
Peat, Marwick & Mitchell	Carol Barclay, Chicago	8*323-3856
Arthur Young	Bob Cohen, NYC	8*222-3486
J.K. Lasser	Bob Cohen, NYC	8*222-3486
Arthur Andersen & Co.	Vern Wedow, Detroit	8*361-3970
Price Waterhouse	Bob Cohen, NYC	8*222-3486

800 (11-70)

For Fast-Fax call: TTY:8\*273-4524 8\*273-4421 8\*273-4714



## DATA MANAGEMENT





## DON'T MISUNDERSTAND FILES

When should you use files — and when should you use DATA statements? Dinu Martin, Headquarters Sales, said that if data is to be used by only one program, and if the compiled program with data doesn't exceed size limits, it's much more economical to use DATA statements instead of a file, in either Mark I or Mark II either BASIC or in FORTRAN.

Below are shown Mark II coding and runs. Would you believe a 20 to 1 improvement in price when you use DATA statements?

(P.S. Dinu Martin is now your contact for Data Base problems. Don't call him for Mark I problems. You may now reach him on 8\*273-4468)

SLEWDATA 12:47EST 11/13/70

1,2,3,4,5,6,7,8,9,10

SLØW 12:48EST 11/13/70

5 1 FØRMAT(V) 6 INTEGER A(10) 10 READ("SLØWDATA",1)A 20 DØ 2 I=1,10; 2 K=K+A(I) 30 PRINT, K 40 STØP; END FAST 12:45EST 11/13/70

10 INTEGER A(10) 20 DATA A/1,2,3,4,5,6,7,8,9,10/ 30 DØ 1 I=1,10; 1 K=K+A(I) 40 PRINT, K

50 STOP: END

RUN RUN

SLØW 12:47EST 11/13/70 FAST 12:46EST 11/13/70

55 55

PRØGRAM STØP AT 40 PRØGRAM STØP AT 50

USED .42 UNITS USED .06 UNITS

## **OBJECT PROGRAM SIZE IN FORTRAN**

Mark II FORTRAN users may use the following guide when considering program size:

Run-time package
Available space for object code excluding external subroutines
Available space for object code including external subroutines
Maximum size of object code using LENGTH command
Maximum size source code

9024 words
19288 words
20288 words
19288 words
250 PSU

John Wright, IND, also provided the following file size information for Mark II.

Random binary record size using CREATE
Random binary record size referenced by FORTRAN
Sequential binary record size referenced by FORTRAN
Sequential ANSCII record size referenced by FORTRAN
Sequential ANSCII record size referenced by FORTRAN
158 characters
File size
Current file size
File size when created by LINE EDIT
43 PSU

## MARK II APPLICATIONS LIBRARY INDEX 900000

An improved Mark II applications program library index is now available. Direct shipments to your office are being made to provide you with an adequate initial supply. They should arrive prior to Thanksgiving — the mail system willing!

You will find the accuracy and completeness of 900000 considerably improved and plans are to update it every four months. Note the following additions and changes in its content:

- The inclusion of DSS level II software (Level I will be added at the back in the future)
- The addition of a section for peripheral devices software.
- 3) The elimination of the "off-line" category and the inclusion instead of a category called "additional" on-line software. Documentation for these programs, always indicated with a prefix 5 in the publication number, is available from Fast-Fax only.

When ordering applications documentation through Distribution Services, Scotia, N.Y., use the following simplified four step approach:

- You or the customer identifies the application desired in the new 900000.
- Check the associated documentation number against the price list.
- Check the document number against the weekly yellow status sheet to insure its current availability in Scotia. (Note that the yellow status sheet uses 900000 as the base document until the next reprint).
- Process the order if the document is available or notify the customer as to its current status.

Don't underestimate the importance of 900000 as a tool for building revenue with current customers. Make sure your customers have sufficient copies... send a copy with The Time-Sharing LEADER.

Frequently Marketing and Applications Development personnel have found that customers are unaware of software available on our systems.

The ON-LINE LIBRARY INDEX LISTINGS will be updated by December 1 and maintained current for a trial period. The usage will be monitored to determine its usefulness to customers. If it appears to be of little value to customers, the on-line listings will be dropped.

### DATADISPLAY IMPROVEMENT

Karyl Andolina, Pittsburgh, has provided a modification for the four Datadisplay programs. Now Mark II users have a printout of summary statistics up to eight digits.

## TIME-SHARING AT NATIONAL CHEMICAL ENGINEERS CONF

For your petro/chemical customers and prospects, a seminar-workshop on "Process Design via Time-Sharing Computer," featuring GE Time-Sharing Service, will be held in Chicago, December 5—6. As part of "Today Series" of the American Institute of Chemical Engineers at their national meeting, Tal Briddell, Application Sales, and Robert V. Jelinek, Syracuse University, will present GE offerings including GEPDS, GPSS, and DYSIM. Those attending may operate demo programs from terminals connected to the GE Mark II system.

This great two-day seminar cost \$100 for members and \$125 for non-members. For reservations, have your customer contact Hal Abramson, American Institute of Chemical Engineers, 345 East 47th Street, New York, N.Y. 10017.

## GENERAL PLOTTER FOR MARK II

Ron Pushee, Schenectady, has modified ALPLT\*, general purpose forecast/plot routine in APEX\*\*. It was a Mark I only program because it has PRINT USING. Now that Mark II has PRINT USING, he has modified ALPLT\* as well as added other variations to make it very handy.

For example, it has an option for form feed, if you're using a form feed terminal. It also takes up to five variables (rather than two). ALPLT\* appears to be in the general ball park of using the system to do data management. It gives you ability to plot from data that you have in a base. Ask Fast-Fax for documentation for the improved ALPLT\*.

### ROUTINES FOR DATA BASE?

Have you written a routine or program to massage, manipulate, print read or convert data in a data base, i.e. Ron Pushee's modified ALPLT\*? Share it through APEX\*\*, Applications Programs EXchange, catalog GPO53\_\_\_\_. Save others from duplicating programming efforts. Contact Fast-Fax to share your programming aids for data base applications.

NEW DIAL CON	IM NUMBERS
Bala Cynwyd	8*241-1297
Dallas	8*354-5111
East Orange	8*221-1365

## DSS AUTHOR LIST WITH THIS ISSUE

With this issue of Fast-Fax, is a list of all present Datanet Software Services authors. You are encouraged to sell (and will receive revenue credits for) EUEO, NGPA, CAPEX, and Corporate Engineering (PA300). The other 18 authors are in another category and their programs are to be demo'd and sold only by the author.

As the author sells users in your area, you will be contacted by the author or user and you should:

- 1. Initiate a credit check
  - Eastern Region call Al Sutherland 8\*273-4312, 4771
  - Central Region call Al Bledsoe 8\*273-4784,
  - Western Region call Sy Witcoff 8\*273-4256,
- With credit check approved, get prospect to sign a GE contract (MF-1)
- Call Helen Fincutter, 8\*273-4588, for a user number in that author's Q catalog on Network (No monthly minimum required).
- Validate the user number for user number billing.
- Provide the standard time-sharing terminal instruction.

Try to get the customer to take out his own Mark II catalog for which you'll receive full credit. He'll be subject to the monthly minimum for this catalog. It's not required that he have this separate catalog but it's commissionable to you.

CAPEX and Corporate Engineering programs are not in Q catalogs like the others, so step 3. above need not be done. Instead, the user accesses programs from his own catalog number or his local Mark II system by typing DSSL: (program name).

## MARINE RESOURCES DISCONTINUE DSS OFFERING

Marine Resources, Inc., is discontinuing its DSS Level I offering of digital filtering for electrical engineers. Jerry Chessler, Applications Sales, said the action is due to lack of usage by customers.

## **CHRISTMAS CARDS**

If you're considering sending Christmas cards to your customers, Information Services Division has a special card available. Each office will be receiving a sample soon along with ordering information.

## DSS CATALOG NAQ01 BEING UNBUNDLED

Last May the Q01 catalog was initiated on Network to consolidate DSS activity in one common catalog. Since then, over 20 authors and 1000 file names have been implemented, resulting in long response times and a scarcity of available user numbers.

To alleviate these problems, the decision has been made to

- assign one Q catalog to each new author on Network, and
- (2) to assign and implement one Q catalog on Network for each existing author in Q01.

These two steps will be completed by 1-31-71.

All ISD field managers will receive a complete description and new standard instructions for the DSS Level I and Level II Services.

The authors affected by the unbundling will be transferred to their new catalogs at the rate of two authors per week beginning in November. As authors are transferred to new Q catalogs, you will be informed through FASTR\*FAX.

As your customers wish to access DSS software, continue to follow the standard procedure of contacting Helen Fincutter (8\*273-4588). She will provide you with an "approved" user number in the author's Q catalog.

CLASSIF	ED ADS NO	OV. 15, 1970
	AVAILABLE	
Pkwy., tehin Ctr. RNRLAYER b. 19 area, R c. 5t indards ad. lett on	"LIST OF LOCATIONS" from Distribution Services, Scotia, N.Y. Ask for Pub. 108047F.	/a. area, pcr- 320-2876, re. Stock & exper. nec. 5 r ?! Ra-ent 511. Wk. 464
O ub on laif.	WANTED	distr. has
rience arres WMA TRANS a s.e. (Car AR W. SHEI WORD of SON Tir and on ps. apply al way 75 No Vill. Vd. or Mr. 434-3	Gear Reduction program, such as, in a clock timer: how many stages are required to perform a 1000:1 reduction? Contact Dick Schutts, Davenport, Ia. or Fast-Fax.	s of Motro area, ust 12 50 cwn 2. 22 50 5, h. Lean area affeur's lie, or ure depend able mg. Perm and depend able and bern'ts.
AFF ENTERS rien. See M St. ol. Rie. B At le. CAP HH project. Supt., Mr. R CONSTRUCT	Program using Box-Jenkins fore- casting technique; program to de- termine time-lag using spectro analysis. Call Jean Richard, Meriden, or Fast-Fax.	Full a sver
Only top me tende t. Walt Cont Fores CAI PENTER tation, top	Student/class scheduling program. Phyllis Cohen, 8*432-5321 or call Fast-Fax.	seas on. a poli- ean driving rec- cal requirement as neavy equip- eact Mr. Surer- ual opportunity
AP PENTERI Ap. Project, or call 7.5 I AP 2 Z. TER Only top ma GI SSM VI	PDP8 simulator for Mark II BAS or FOR. Call Al Friedman, BTL, East Orange, 8*221-1365 or Fast-Fax.	n, hangers, fin- l. Call , 4-505 MENT SALEF si; on audio Wash, area ressive young
Entire Vision Vi	Program for classification of inventory by ABC method, stratification of inventory by descending dollar value. Gary Martin, 8*432-5321 or call Fast-Fax.	rate with Phil. Benefits

## FAST-FAX



December 1, 1970

## "WHAT'S AHEAD" - GREAT SALES AID

Are you making use of "What's Ahead", a new slide presentation on General Electric Time-Sharing future. Its a 42-slide show for carousel projects and comes with a script. One set of slides and script has been sent to each district office. It has probably been shown in most of the recent district meetings. It's a great story — tells why GE is the leader in Time-Sharing.

## YOUNG RADIATOR NETWORK USE IN NATIONAL SALES MAGAZINE

The Young Radiator Co. network applications story is featured in the national magazine, SALES MANAGEMENT "The Marketing Magazine", November 1, 1970. It points out how GE timesharing service puts computer power at the tips of their nation-wide sales force. It's a good promotion display for potential network users.

### ISD FLAG

When you use the ISD flag, it should appear as above, according to Bob Richardson, Marketing-Communications.

The words "Information Services" shall be in the upper portion of the flag, and words "World Leader in Time-Sharing Service" shall be in the lower half. Repro copy of the flag can be obtained from Minnie Ferguson, 8\*273-4749.

## DATA BASE AIDS

We're offering more for data processors every day. Sort and Merge programs GSORT\$\*\*\* and GMERG\$\*\*\* are now available in FORTRAN on Mark II. GSORT\$\*\*\* will sort an ASCII file (maximum of 1000 records) in ascending sequence by 1 to 5 different control keys. GMERG\$\*\*\* merges up to 7 sorted files into one or more output files. List GSINF\*\*\* for instructions.

## MAILING LISTS FOR TIME-SHARING LEADER DESCRIBED AS EFFECTIVE SALES TOOL IN E. PENNA. DISTRICT

Don Stone, Eastern Pennsylvania District Manager, began a program within his district to update and maintain the mailing lists now that The Time-Sharing LEADER is available and getting such excellent reception from customers.

Here's a summary of Don Stone's suggestions on who to add to the mailing list for The Time-Sharing LEADER:

- Top management of any company employing more than 500 people, or having annual sales exceeding a hundred million dollars.
- All persons who attend Time-Sharing, BASIC or FORTRAN classes.

- 3. Key personnel in prospect's office
- 4. Former customers.

Al Jones, Manager Central Region, sent copies of Don's letter to other District Managers suggesting they use whatever ideas were applicable in their areas.

Addressing LEADER to top management with a reply coupon could get you invited to the Executive Suite. It's a way to get around "that" guy who always says "I'm the person for you to see here."

800 (12-70)

For Fast-Fax call: TTY:8\*273-4524 8\*273-4421 8\*273-4714



INFORMATION SERVICE DEPARTMENT

### FOUR NEW EDIT COMMANDS

Four new edit commands are described in mannuals which will be available to field offices (and customers) in mid-January. The manuals are COMMAND SYSTEMS, 711223E, and EDITING COMMANDS, 911374B.

The manual provides complete instructions for using the four new edit commands which have been designed to give the user more facility for managing his data files and his stored programs. The new commands are:

**EDIT DESEQUENCE** 

which takes line numbers off a file — helpful for preparing data files to be listed or processed.

**EDIT SEQUENCE** 

which adds line numbers to a file – convenient in preparing to edit files which were created in the Data Storage Mode or which were previously "desequenced".

Both of these commands are line edit functions. They operate only on ASCII sequential files, and have a number of user-oriented options.

EDIT \$ADD

which permits a user to insert lines of text, including carriage returns, into a file.

**EDIT \$DELETE** 

which permits deletion of entire lines from a file based on the content of the lines.

These two commands are String Edit functions and were designed to complement the use of the existing \$FIND string command.

To assure the earliest possible delivery of the COMMAND and EDIT SYSTEMS manuals, field offices can pre-order, before publication, a number of copies to be shipped in bulk directly from the printer. Pre-orders should be in a Quick-Letter to Norm Otis, ISD, Bethesda, prior to publication (around Jan. 15); after publication, manuals can be ordered through normal channels. Customers will be advised of these new edit commands, on all Mark II systems now, in The Time-Sharing LEADER.

## DOCUMENTATION FROM FAST-FAX

Fast-Fax has a few copies available of the following publications which are to be superseded or discontinued.

AR-4 AR-15 807233 FT910373

Critical Path Method System
CPM Graphic Report Writer
Analog Computer Simulation
Reliability Analysis by Weibull

Distribution

Until our supply is exhausted, you may obtain these publications, at no charge, by contacting Fast-Fax.

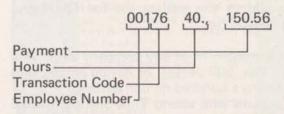
## FAST FIX

## GENERALIZED PAYROLL SYSTEM

GEPAY\$\*\*\* system has been revised to allow the user to manually calculate and enter the total payment, along with the hours, for "Payment" transaction codes 76-82 said Ray Porter, Business & Manufacturing Applications. If only the hours are entered for these transactions, the system will compute the payment using the "rate" in the employee's payroll master record. If both the hours and payment are entered, the systems computation of payment, for that transaction, will be bypassed and the payment entered in the transaction will be accepted as being the correct amount.

This feature allows the processing of employees that worked at more than one pay rate or at a pay rate different than the rate in the master record during the period.

Following is an example of a "Payment" transaction (trans. codes 76-82) with the amount of payment entered. Note that the "hours" entry must be immediately followed by a comma (,) and then the payment amount. The hours and payment amount must contain a decimal point.



Transaction code **09** is mandatory for the setup of a "new" employee on the GEPAY\$ Master file.

## Network Users Have Variety of Applications

Five generalized application areas that describe how the Network System is being used by customers are cited on this page (good for reference to prospects). Some customers are using a combination of these, some customers only one. An example of an actual user follows each category. (Customer names and the ISD representatives who take care of the accounts are available upon request from Fast-Fax).

STANDARDIZED PROCEDURES — Companies with multiple remote locations have discovered they can gain the benefits of standardization by having all offices use common programs. All field locations use the same method with a shared file.

- Nationwide CPA firm has more effective financial reporting system for clients by having all branch firms use a standard financial analysis package. Inventory forecasting and short-range forecasting techniques are rigidly standardized and in proper format for faster reports at head-quarters. Programs used are written by the customer and use file-sharing capabilities within a catalog.
- Manufacturing firm with nationwide offices minimizes personal optimistic inputs to their economic and market forecasts by having all offices use company-written program. Production control and reporting techniques are standardized. Engineering problem-solving is standardized throughout the country, using agreed-upon formula and calculation techniques.

SHARED LIBRARY — Companies multiply the efforts of individual work. One person skilled in modeling or project simulation makes his skills available to all company components in the nation by sharing his library programs with others. It avoids reinventing the wheel.

 Terminal manufacturer standardizes training, documentation, procedures, allocation of charges, etc. in the nationwide marketing of a terminal by storing demonstration software on Network. OPERATIONAL REPORTING — Branch offices eliminate the paper generation/mail-to-home-office syndrome by writing their operational data into files permiting the headquarters operation to produce meaningful composite reports for the entire business operation.

Information Systems headquarters operations consolidates group reports by having multiple remote locations prepare and store files in prescribed format. Single group of report generating programs; scan pre-named files to consolidate reports. Long-range forecast programs prepare composite forecast, having read pertinent data from each file.

FIELD ASSISTANCE — Companies selling products with a high amount of technical content, or where products must blend with other system components, can make state of the art technical data and current pricing data available to the field quickly.

 Lighting systems supplier provides field sales force with computerized alternative lighting approaches. Sales offices solve application and quotation problems by accessing permitted files to compute street lighting lumen requirements, flood lighting levels, or number of fixtures required to cover area at specified light levels.

BUSINESS SYSTEMS — Individual time-sharing applications can be combined into cohesive business systems with some careful planning. Imaginative managers can use the three functional attributes of the Network System: 1) nationwide points of access; 2) ability to store and manipulate large files; 3) fast turnaround.

— A large chemical company's order processing system provides order entry at multiple district locations, order acknowledgement to customers at sales offices, order transfer to applicable plant, invoices to customers, bills of lading to customers, order status reports to district personnel, and data files for access by its headquarters management.

### NCPPL USER'S GUIDE

Now, N/C Parts Programming Problems, NCPPL, documentation is available from Distribution Services, Scotia, N.Y. User's Gude, 007429, (\$8) is profusely illustrated, a how-to-do-everything with NCPPL said Joe Domonkos, Applications Marketing. It has many examples illustrating part programming problems. NCPPL is easy to learn, powerful, and handles virtually any NC machine problem. Documentation has detailed examples of the set-up and use of COPY and CYCLE files. Also it contains complete explanations of the use of NCPPL as a REMAPT post processor.

## WANT TO TELL IT TO SOMEONE???

Joe Juliano, Buffalo: I found an error in one of the manuals, and I don't know who to report it to so it gets corrected in the next printing. Can you help?

Ken Wallace, Indianapolis: the manual says one thing, but the system does another. Who can I tell?

The best method of communication to use — to assure that your message is seen by the proper persons — is to record your complaint (and/or suggestion) on the TELL.ME system. The people in product planning say that they get a copy of complaints on such matters, and they'll see that some action is taken. You'll receive confirmation that the message was received, and who is assigned the action. For TELL.ME instructions contact Fast-Fax.

## MANUFACTURING AUTOMATION AIDS SHIPPING AND PACKAGING DEPT.

If you have a customer or prospect who stores and moves merchandise on 48" x 40" pallets, PALET\$\*\*\* and PACKG\$\*\*\* programs should interest him. More than just determining which is the most efficient way to stack cases on a pallet to minimize void spaces, it helps you design a better case that can be optimized for the pallet.

The programs were originally written by Milt Plaut, Manhattan, for General Foods. MODERN MATERIALS HANDLING magazine had an article on the programs in its October 1970 issue. Documentation is available from Fast-Fax. Program support is provided by Bob Ruzicka, 8\*273-4592.

## SOME GOLF BALLS ARE DUDS

Bob Garden, Seattle asked Fast-Fax to pass this along to the field: All IBM typing elements (golf balls) will fit 2741 terminals, but some will print garbage. There's no trouble getting them to fit on the element post, but the character placement on the surface of the balls is not standard. The only "golf ball" that appears to print properly on the 2741 is number 963. You can find the number under the end of the element release lever. If you get a 2741 terminal connected to the system, and you don't have timing problems — but still get garbage — it's possible you don't have the 963 "golf ball" on the machine.

## FLEXIBLE, RESPONSIVE FINANCIAL ANALYSIS

With the close scrutiny financial statements are receiving today, FINAN\$, financial analysis system, can provide your customers with rapid historical and projected financial reports. The decision-maker who needs responsiveness and flexibility can use it in analyzing trends of balance sheets, income statements and ration analysis, said Clarence Selin, Applications Marketing.

Who will be using FINAN\$? Banks, accounting firms, investment analysts, and individual firms... wherever the traditional analytical techniques fail to give the decision maker the rapid response and flexibility he needs. Promotion sheet 245010 will provide your customer with a number of benefits he can get by using FINAN\$.

	WANTED	
BUS OPERATIFICATION AND A S.E. (Car. CAR. WFale) working continuing and on	Version of APEX** Labor Distribu- tion and Payroll package modified for binary files. Has anyone done it yet? If so, contact Fast-Fax.	te, 2. 332 1, M. Lean area affeur's lic. or
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NIH Project, Supt., Mr. R CONSTRUCT CACHPINIER Only Op me tende t, Walt CALPENIER tation, top CILIBE CALPENIER Ap., Project, Or CHITC.	Anyone using digitizer applications for determining volumes of irregular shapes, for for Mark II? Contact Harlan Dodge, Cincinnati, or call Fast-Fax.	Drug Stere 57-2800.  EL OIL
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December 15, 1970

### IN LONDON FOR NETWORK

Jim Spencer (formerly of the Manhattan office) and Lee Sweigert (formerly of Tulsa) are in London to help your customers use Network capabilities. They are ready to help get subsidiaries of your U.S. customers working on the Mark II from London offices.



If you have any information for Jim or Lee about your customer's subsidiary in England, send it to Jim Doyle, Fast-Fax, and he'll get it to London. They are interested in programs your customers can use from London, applications being used in U.S. that might be done in England, etc.

## COMPETITIVE INFORMATION FILES UPDATED

The competitive information files on GPØ53 have been completely updated. The index of VENDR\$ now shows what competitors have merged, died, were created, etc., so you don't need to run the whole sort routine. You can list the 186 entries in VENDR\$ and get a feel for what's happened recently. All prices have been reviewed, updated, new sales and IPC locations added, etc. said Tom Choate, Marketing. CØMPS\$ will sort the vendors' system name, prices and location (zip code). CØMEX\* has detailed instructions on how to use CØMPS\$ sort program.

## **TAX CHANGES FOR 1971 IN GEPAY\$**

All TAX changes and the new FICA deduction rate for the calendar year 1971 will be implemented the Generalized Payroll System, GEPAY\$, on January 2, 1971.

Please inform your GEPAY\$ users. If this creates a problem, notify Ray Porter Bus. & Mfg. Appl., or call 8\*273-4589.

## STAT1\*\*\* REVISED

The Mark II program, STATI\*\*\* for computing 14 commonly used statistics has been revised in accordance with a suggestion from Paul Linsley, Philadelphia. The new version computes confidence intervals for the mean and standard deviation, and it automatically exhausts an input file of all data sets. A sample data file, FS105\*, containing seven small sets of data, is available from APEX\*\*. Cal Cillay Eng. & Sci. Appl., said that you must enter a paper tape of this file in DSM.

### **GSORTS NOW DESCENDS**

John Sliter — Empire District, called to make a suggestion on the GSORT\$\*\*\* and GMERG\$\*\*\* programs. As a result of his call, the programs were modified so that this package will handle descending keys as well as ascending keys. List GSINF\*\*\* for information about the programs.

## **IMPROVED NLNET\$**

A new version of NLNET\$ has been released which now allows transistors to be directly coupled. Convergence problems may still occur. If they persist, contact **Norm Thurston**, Eng.& Sci. Appl., 8\*273-4586.

800 (12-70)

For Fast-Fax call: TTY:8\*273-4524 8\*273-4421 8\*273-4714



## **PA300 POTPOURI**

In response to a number of questions about PA300, Clarence Selin, Applications Marketing, has provided the following inputs.

- 1) You may now demonstrate PA300 from any internal user number by using PA300 in the Datanet Software Services Library (DSSL): special after-hour billing rates apply to all internal usage.
- 2) Want to plan a PA300 seminar for your office or prospects? Contact Clarence he will make the arrangements with Corporate Engineering. Please, no direct calls to Corporate Engineering.
- 3) You can now set up a customer to use PA300 yourself. Here's how:
  - a) Establish a new file "CF" as follows:

**NEW CF** 

READY

1000

SAVE

READY

b) Then SAVE the following files by saying

SAVE "file name"

where the file names are:

DF,PF,NF,AF,HF,RF1,RF2,RF3,RF4,RF5,DET

- (B) the name of this file is the single character control B
- (C) the name of this file is the single character control C
- c) Thus a total of 14 files are required in each user number accessing PA300. The file names must be exactly as shown. After these files are set up, you can check yourself by running.

OLD DSSL: CHECK

READY

RUN

- 4) None of your customers should be using PA300 from Q01 catalog. This catalog is being phased out. Your customer will realize many benefits by accessing PA300 in the DSSL from his regular Mark II user number.
- 5) A much improved PA300 user's guide and several major product enhancements are planned for early 1971. If you have any suggestions contact Clarence, 8\*273-4731.

## **DSS RECENT ADDITIONS**

Two General Electric components, in the November 1970 list of Datanet Services Software Authors and Applications, are making their software available on Network to GE internal users only.

program description as part of their course package and will be able to continue to use them after completing the course. Contact Larry F. Bell. or Jens Brondel, 8\*235-3514.

### CASH FLOW AND PROBABILITY PROGRAMS

Two programs, Cash Flow After Taxes (CFATX\$) and an improved version of PA1 (IMPA1\*), are available in GE Manufacturing Education's NAQ03 DSS catalog. Its object is to provide graduates of the MPA Training course, continuous access to these programs. Users will have received

## INVENTORY SIMULATION

GE's Advanced Materials Operation is offering TRIM (Test Rules for Inventory Management) in its NAO13 DSS catalog. TRIM is a simulation program for the design of inventory systems and the pre-testing of these systems. It shows how the elements in an inventory system interact. User manuals, \$7.50, available from Ed Bailey 8\*222-2521.

## Packing is Good, But Mapping is Better

A data management technique to handle large 'hollow' tables is given by Dinu Martin, Head-quarters Sales.

Company X sells 100 different types of services performed by its 100 employees. A specific employee performs at most 14 different types of services. A service is charged by the hour at a rate depending on 1) the service 2) the employee. In theory, the matrix of service charges contains 100\*100=10000 different hourly rates. These vary from \$5 to \$36 in increments of \$1.

- Storing the matrix normally requires (disk or memory) 10000 words.
- Let R be an hourly rate (5<=R<=36). R can be represented by R-5 (0<=R-5<=31) using 5 bits. Therefore, 7 rates can be packed into one Mark II word: This requires only 10000/7=1429 words. Packing is great!</li>
- 3. Let us use one bit to represent the status of one service for a specific employee: The bit will be '1' if the service is available '0' if not. A maximum of 100 bits (3 words) should then be used to describe an employee's activities. Adding 2 words (14 rates, packed 7 per word) to describe the rates (in the proper order) we use 5 words per employee, or a total of 500 words instead of 1429 or 10000. The packing, unpacking, and mapping operations can be performed extremely fast using the new 'FIV' bit functions 'AND(I,J)' and 'ØR(I,J): Mapping is better!

The above means more than the 95% space savings and considerable processing time economy. It makes possible applications which were otherwise far too expensive or too large to be undertaken.

## MARK II INFORMATION, EXPLANATION FILES

On the Mark II system are several EXPLANATION and INFORMATION files which provide up-to-date information on program changes and how to run them. Below is a list of the files and the associated library program.

```
ABC*** - A-B-C Analysis
ACDCINFØ*** - ACNET$ and DCNET$
AISCEXP*** - AISC Steel Handbook files
BEXP*** - BUDGT$
BØXINF*** - BØXCU$
CFVINF*** - CFVØL$
CØGØEXP*** - CØGØ$$
CULINF*** - CULVR$
DEPEXP*** - DEPR***
GETAX*** - GEPAY$ Tax codes
GIRINF*** - GIRDR$
GJINFØ*** - GJSCH$
GLINFØ*** - GLATHE
GPSINS*** - GPSS
GSINF*** - GSØRT$
INFSTR*** - FØSTR$
INGRTR*** - GRØTR$
INGSTA*** - GETSA$
LITINFØ*** - LIGHT
```

LPINST\*\*\* - LINPRØ

```
NCINFØ*** - NCPPL series
NETINF*** - NETWK$
PCABRINF*** - PCABR$
PCACLINF*** - PCACL$
PCAPLINF*** - PCAPL$
PRØVEX*** - PRØVAR
REGEXP*** - Regression Analysis
REMINFØ*** - REMAPT
RETINF*** - RETWL$
SOLINF*** - SØILX$
STADES*** - UNISTA, CURFIT, MULFIT, CØLINR
STATEX*** - STATAN
STMIFC*** - Steam Tables
STRESEXP*** - STRESS
TRAV1ING***- TRAV1$
TRUINF*** - TRUSS$
TRVINF*** - TRAVR$
WBLEXP*** - WEIBL$
WININF*** - WINDA$
WSIND*** - WKSAM$
```



Mike Farsaci, Syracuse, has developed a wrinkle in the Computer Assisted Manufacturing pitch from which he has been getting good results.

It is a presentation package consisting of visuals describing the CAM package and manufacturing activities. A set of notes (good for a "speakers" outline) contains information ranging from the brief CAM brochure descriptions to the more detailed program abstracts. Modified 'Wanted' posters assist the presentation. The package includes a sample follow-up letter and order form. The presentation may be from a loose leaf binder for small groups or overheads for larger groups. For a copy contact Mike, 8\*256-1995, or Joe Domonkos, Applications Marketing, 8\*273-4659.

## SOME OFFICES GET HIGH WEEKEND REVENUE BOOSTS

The weekend of November 21/22 was the highest single weekend usage recorded. Did your office get its share of this revenue? Was it because users had a lot of month-end work to do? Was it because there was a banner message informing them that service would be available? If the last reason is the case, then we have not communicated to our users that weekend service is available. Each Friday Mark II banners will indicate hours available for commercial use. Make it a point in your next mailing to advise customers of the Friday banner. It pays nice dividends in revenue boosts.

## SPECIAL TERMINAL PRICE TO INTERNAL GE CUSTOMERS

ISD field salesmen are authorized to sell the DataNet-730 terminals (mobile and portable) to internal GE components for \$1200 each, effective 12/1/70. The sale price to non GE components remains the same, i.e., \$1850 for a mobile unit and \$1900 for a portable unit. A transportation, check-out and delivery charge of \$35 is still applicable on all sales.

Standard lease prices as well as current lease/purchase option is not affected by this authorization. This means that if a GE component wants to convert his DN-730 lease to a purchase, the applicable credit will be based on the \$1850 sales price. He can, however, purchase his leased unit for the new price of \$1200.

Maintenance on sold units is available from the General Electric Service Shops Department. Your customers should be encouraged to obtain a maintenance contract directly from Service Shops.

As is the case for external sales, the Terminal Bonus payment of \$25 for each DN-730 sale at \$1200 internal price is applicable.

CLASSIF	IED ADS D	EC. 15, 1970
	AVAILABLE	
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