



REINHARDT HELMUT

Volume I No. 17 October 15

DIVISION NEWS

NEW ASSIGNMENTS IN MARKETING

by Ed McCracken

During the last 18 months, major changes have been made in our Data Systems European marketing approach. All factory marketing activity for our product line has been consolidated from our facilities in South Queensferry, Boeblingen and Geneva to Grenoble. In addition, Grenoble now has marketing responsibility for the optical mark reader and paper tape reader product lines. Karl Schwarz (Grenoble General Manager) and I have asked Bob Bond to transfer to France as Data Systems Products Marketing Manager. Bob's seven years experience will be valuable to the Grenoble team during this period of rapid growth in factory marketing. Until Bob does transfer, he will continue as Education Marketing Manager.

George Schapiro has decided to pursue on a full-time basis his long-term interest in the medical market. He will be transferring to MED as the Product Marketing Manager of the Patient Monitoring product line.

I have asked Bill Krause to join the Data Systems Marketing team as Systems Product Marketing Manager. Bill will have product marketing responsibility for the 2000, 3000 and education systems marketing efforts. With the redefinition of the 3000 from a "midi" to a top-of-the-line minicomputer and the real existence of network systems, a closer tie among our systems efforts will be useful. Bill's Neely sales management experience will be extremely valuable.

Bill's new Systems Marketing organization will have six product management groups:

Bruce Noel 3000 Product Manager **Dave Sanders** Distributed Systems Manager 2000 TS Product Manager Jim Candlin Pete Palm RTE/DOS Product Manager Systems Program Manager **Nev Griffin** Bob Bond (Acting) **Education Market Manager**

Our Publications activity in Data Systems has had three different assignments:

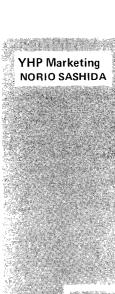
- 1. Hardware Writing
- 2. Software Writing
- 3. Advertising and Production

This Issue . .

IVISION NEWS	
ew Assignments in Marketing E. McCracken	(1)
The state of the s	(3)
	(3)
	(3)
or OEM's, Sell the Whole Picture J. Schmidt	(3)
hange in Manual Policy Being Implemented . T. Doyle	(3)
RODUCT NEWS	
640 Press Tour T Anderson	(4)
	(4)
	(5)
	(5)
	(5)
	(5)
	(5)
Tigates for the responses of the second seco	(3)
ALES AIDS	
1MX Information	(5)
P 3000 Customer Slide Presentation S. Tritto	(5)
1MX Paper Tape Assembler	(5)
1MX Talk - Selling HP 21MX B. Senske	(6)
	(7)
IUMPS Competitive Analysis P. Palm	(8)
upport Services Sales Amplifier On Its Way . A. Wagner	(9)
rice Lists L. Nelson	(9)
DUCATIONAL NEWS	
urriculum Literature Available P. Danzer	(9)
	,-,
RAINING NEWS	
ourse Schedule Changes F. Jackson	(10)
000 Series Assembler and	
100 Series Assembler Courses F. Jackson	(10)
Course Schedules F. Jackson (11)
OTPOURRI STATE OF THE STATE OF	
eptember/October Ad Schedule	12)
	ew Assignments in Marketing E. McCracken ovember Sales Seminar Delayed Editor ew ESR Sales Development Manager T. Doyle P Participates in ACM 74! S. Tritto or OEM's, Sell the Whole Picture J. Schmidt hange in Manual Policy Being Implemented T. Doyle RODUCT NEWS 640 Press Tour T. Anderson hoto-Reader Price Change D. Hancock ew Option for 2860 Cabinets D. Pantle 616A Discontinued B. Kadarauch EM Accounts Reach Record High! E. Hayes ptical Mark Reader Software Project H. Amick hanks for the Response! J. Hill ALES AIDS IMX Information R. Edmonds D. Bowers IMX Talk — Selling HP 21MX B. Senske ew OEM Agreement L. Nelson UMPS Competitive Analysis P. Palm upport Services Sales Amplifier On Its Way A. Wagner ice Lists L. Nelson DUCATIONAL NEWS DUCATIONAL NEWS DUCATIONAL NEWS DUCATIONAL Selling HP Courses F. Jackson (DOS-111 Course Locations F. Jackson (DOS-111 Course Locations F. Jackson (DOS-111 Course Locations F. Jackson (DOS-111 Course Schedules F. Jackson (DOS-111 Course Schedules F. Jackson (DOS-110 Course Schedules F. Jackson (D

To bring the organization closer to its audience, the Hardware Group will now report to Wil Houde, Customer Engineering Manager, the Software Group will report to Jerry Peterson, Systems Engineering Manager, and the Advertising and Production Groups will report to Ted Doyle, Sales Development Manager.

(Continued on page 2)



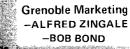


ED SMITH

DATA SYSTEMS MARKETING



JANICE COELHO





RONNIE COVINGTON

Customer Engineering



WIL HOUDE

Systems Engineering



JERRY PETERSON

Systems Product Manager



BILL KRAUSE

OEM Product Marketing



ED HAYES

Sales Development



TED DOYLE

Systems Product Manager BILL KRAUSE

Distributed Systems DAVE SANDERS

Program Manager NEV GRIFFIN

Education BOB BOND (Acting)

3000 BRUCE NOEL 2000 TS JIM CANDLIN RTE/DOS
PETE PALM

Many of you have explained the need to me of a Data Systems *Government Procurement Coordinator*. I have asked *Ed Smith* to work for me and fill that position. He will coordinate the factory effort on major government procurements.

Norio Sashida has been named as the Data Systems Factory Marketing Leader at YHP.

I think we have the products, the sales force, the manufacturing capability and the marketing people and organization to make '75 our most successful year.

HP Computer Museum www.hpmuseum.net

For research and education purposes only.

NOVEMBER SALES SEMINAR DELAYED

by Editor

The previously scheduled senior sales seminar to be held in Cupertino in November has been delayed. We expect to reschedule this shortly.

NEW ESR SALES DEVELOPMENT MANAGER





Ron Grace

by Ted Doyle

I'm pleased to announce the appointment of *Ron Grace* as Manager of the Eastern Sales Development team at Cupertino, effective September 30, 1974. *Ron* assumes this new responsibility with excellent credentials that promise a continuation of superior sales support for Eastern Region.

Ron brings to this position 9 years of HP experience, including experience at Corporate, several years at AMD in manufacturing and software distribution, along with three years in Cupertino's Marketing Department. For the past year and a half, Ron has been with Sales Development supporting our Canadian Sales Region.

I hope you'll all join me in wishing Ron, the Eastern Sales Development team and our ESR Sales force a Super FY '75.

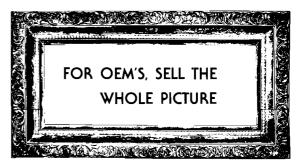
HP PARTICIPATES IN ACM 74!

by Steve Tritto

HP has made a commitment to participate more actively in programs of professional computer association. As a result, *Bill Foster* will be presenting a technical discussion and paper at the International Convention of the Association for Computing Machinery. ACM '74 will be held during November 11–13, 1974, in San Diego. *Bill's* topic will be "THE EVOLUTION OF MINI COMPUTER SYSTEMS".

The papers of ACM '74 will be published and distributed to a world wide audience of computer professionals. *Bill's* participation will serve well in enhancing HP's image in this industry, and in advocating the distributed computer concept.

Let's wish him well in this role of HP Data Systems Ambassador to the ACM.



by Jim Schmidt

When you're selling a potential OEM customer, be sure and sell the whole Hewlett-Packard story. Hewlett-Packard has much more to offer than just a better CPU or a better disc. In many cases, HP offers a better profit and loss statement for your prospect.

We also must plan to sell the right story to the right person in the company. The engineer or computer scientists charged with the responsibility of selecting a vendor usually focuses in on the technical aspects of the product offering. He feels he's done a thorough job if he includes spare parts capability, field service, and things of this sort in his evaluation. He establishes the criterion for his evaluation much narrower than we would like to show the true value HP can offer his company.

An evaluation of the total needs of the company might show that the company is maintaining their own operating system software. They must train their own CE's because they are the ones who have system responsibility. They must deal with a number of vendors because they are the systems' managers. They cannot offer many new software and hardware features to their systems because they do not have the staff to implement them. Examples might be data base management system enhancements and data communication to a larger CPU, such as a 370.

Many times the marketing manager must be included in the sales program because we can enhance his product offering, therefore, getting him more sales. The financial manager may be interested in the reduced operating costs resulting from HP supplying the whole system. The general manager should be interested in an enhanced product offering and a reduced operating budget.

Remember, we have a story to tell the whole company. Let us help you tell the HP story to your whole OEM customer.

CHANGE IN MANUAL POLICY BEING IMPLEMENTED

by Ted Doyle

As more of our manuals take on their new look (see *Ed Smith's* article page 11 in the September 1, 1974, issue of this NEWSLETTER), we are changing the mix of manuals being shipped with systems.

Our goal is to include hardware info in user manuals that the user requires, but to eliminate the detail only required for repair of the equipment. This process should be essentially completed by November 1.

PRODUCT NEWS

2640 PRESS TOUR

by Tom Anderson

As a result of last week's successful press tour, the following 2640A CRT press release will appear in the November issues of the major monthly trade magazines:

NEW CRT TERMINAL FROM HEWLETT-PACKARD IS MICROPROCESSOR-CONTROLLED TO MANAGE MEMORY ALLOCATION DATA COMMUNICATIONS KEYBOARD SCANNING AND DISPLAY CONTROL

First in a series of new microprogrammed computer terminals manufactured by Hewlett-Packard, this Model 2640A CRT Terminal is designed to be used in both page mode and character mode operation for sophisticated data entry applications as well as typical time sharing uses. Microprocessing combined with up to 8,192 bytes of 4K RAM semiconductor memory results in a terminal with many complex features at low cost.

Among these features are a smart memory that can store over 400 lines of data that can be viewed 24 lines at a time by scrolling, up to four plug-in character sets, full off-line data preparation and editing capability, and easy expandability. Built-in self test and modular construction speed fault location and replacement of faulty components.

An easy-to-read display generates characters with a high-resolution (9 x 15) dot matrix. Besides the standard Roman font, math and line drawing character sets including sub and super scripts and Greek characters are available. Additional character sets such as Japanese Katakana are planned. Inverse video (black on white), blinking, half bright and underlining in all 16 combinations is possible. Control codes for character sets, display enhancements and protected fields do not occupy positions on the screen and are transparent to the user.

The smart (dynamically allocated) memory features efficient storage — spaces to the right of a line feed are not stored in memory. Lines that have rolled off the screen remain in memory and are available to the user via roll and page keys. Over 400 lines can be stored locally. Memory is expandable to 8K characters in 2K or 4K blocks — the user purchases only that memory he needs. All allocation of memory to information display is automatic and transparent to the user.

Full editing capability off line allows the user to verify and correct data before transmission to the CPU. The Model 2640A transmits one character or a block of characters at a time. Asynchronous data transmission of ASCII characters is RS-232C compatible at selectable rates up to 2400 baud. When sending blocks of characters, the operator enters or corrects data off line using character/line insert or delete.

Easy to expand, the Model 2640A can be equipped with up to 14 powered stots for additional options, memory or peripheral interfaces. Any of the printed circuit boards can be quickly replaced without tools. Presently available is a Duplex Register to connect a Model 9866A Line Printer to the Model 2640A. Hard copy is printed at 240 lines per minute.

The self-test feature checks the terminal's random-access-memory, verifies the firmware operation and displays the character sets on the screen. An untrained operator can determine if a service call is required. A diagnostic module that plugs into the terminal's backplane is used to pinpoint the defective part.

A liberal warranty policy gives the user a choice between a full 90-day on-site warranty or a one year 'carry in' repair warranty. Low cost full service contracts are available.

ELECTRONIC NEWS also managed to leak the coming of the 2640 in the September 30 issue as follows:

Jata Topics

Watch for Hewlett-Packard to come out late next month with its own CRT terminal to go with its minicomputer line. The Data Systems staff at the H-P Cupertino, Calif., plant are preparing a massive campaign to push the product on an OEM basis for its first thrust into this market. Called the 2640, the terminal is expected to impact H-P's current supplier, Beehive Medical Electronics, Salt Lake City. Beehive terminals are currently offered by the Data Systems division as the 2616A and 2615A, selling for \$4,100 and \$2,450, respectively, for quantities of four or more.

Should you receive calls as a result of this lead, use item to your advantage:

- Confirm that HP will indeed be announcing the 2640 in November and you will provide more information to customers at that time (prices, etc.)
- 2. If the customer belongs on your key 2640 account list, let us know so we can help further.

Hang in there! The 2640 product team is here to help you get those key accounts.

PHOTO-READER PRICE CHANGE

by Dave Hancock

The 2748B Paper Tape Photo-Reader and the 12925A Photo-Reader subsystem are now in full production at our production facility in Grenoble. As a result, we are forced into a modest price increase to offset duty charges and additional freight for our domestic and HPIC customers. The price changes are:

	FROM	TO	
2748B	\$1800	\$1930	Up 7%
12925A	2165	2295	Up 6%

These new prices are effective November 1, 1974. European prices will remain unchanged. Although price increases are unpleasant, this should cause only a minor burp to our systems buyers.

NEW OPTION FOR 2860 CABINETS

by Don Pantle

An "OEM option" has been added to each of the 2860 cabinets. It is option 006, is no charge, and appears September 1.

The option is intended for those customers who purchase the cabinets and wish to mount their own equipment. There are three significant items included in this option:

- 1. The normal cabinet nameplate has an HP logo. This option substitutes a blank nameplate.
- Support rails for mounting equipment are added—four sets on the single bay 2860B and C, six sets on the dual bay 2860D and E.
- Rubber trim strips to cover mounting screws are added and cut to size.

The option is titled "OEM equipment" since it is felt that those type customers would be the most likely to utilize it.

2616A DISCONTINUED

by Bob Kadarauch

Due to the imminent announcement of HP's new 2640A CRT terminal, the current 2616 page mode terminal has been dropped from the product line. Absolutely no new orders for 2616's are being accepted. Customers currently having 2616's on order will be handled on an individual basis. Contact your Sales Development Group for help with outstanding orders.

OEM ACCOUNTS REACH RECORD HIGH!

by Ed Hayes

As of August 1, our OEM accounts have hit our all time high of 161 worldwide.

We expect the number to go even higher as the last returns come in from our HPSA and HPIC OEM account status survey.

This number places HP as number three in account leadership behind DEC (1st) and DG (2nd). We've got the products and prices for 1975 — Get out there and join your friends in getting a cash cow of your own.

Congratulations to all you OEM Tigers!

OPTICAL MARK READER SOFTWARE PROJECT

by Hugh Amick

Grenoble will be assuming Optical Mark Reader (OMR) responsibility as of November 1, 1974, and coordinating efforts in the software area are well underway. *Bernard Gvipow* is at Cupertino to develop OMR software for Data Systems and has a 7261A DOS-III-B driver working in the lab. OMR software is looking up!

THANKS FOR THE RESPONSE!

by John Hill

The Field Sales Force's rapid response to my Printer/Plotter Survey (July 29) was greatly appreciated. Marketing and Engineering are compiling and reviewing your inputs.

There is no better source of information than you who are listening to prospects and customers on a daily basis. Keep up the good work and keep us informed.

SALES AIDS

21MX INFORMATION

by Randy Edmonds

Useful information pertaining to 2105A/2108A Processors and 2101A/2102A Memory Systems can be found in the 21MX COMPUTER SERIES REFERENCE MANUAL, part number 02108-90002.

HP 3000 CUSTOMER SLIDE PRESENTATION

by Steve Tritto

An HP 3000 customer slide presentation has been completed and is available upon request.

The presentation is in a 35 mm slide key word format. The slides describe key features of the HP 3000, the script describes the benefits of each feature.

The format and design of the presentation provides flexibility, allowing the presentor to give an overview or very detailed presentation, depending upon his own expertise and the interest level of his audience.

A copy of the script has been sent to each Data Systems/EPG District Sales Manager appearing on the August roster. The slides are available from Jane Seligson, Cupertino Division, X2025. The part number for the slides is #22999-90012. The cost is \$15.00 per set.

This presentation has been given successfully about ten times by factory and field personnel.

21MX PAPER TAPE ASSEMBLER

by Dave Bowers

Bob Funk, in our Richardson, Texas, office, has modified the Floating Point Assembler to operate as a 21MX Paper Tape Assembler.

The Assembler is intended to be a usable subset of the 21MX DOS Assembler and it not as sophisticated. The following applies to the Assembler.

- All instructions from the 21MX Computer Reference Manual have been implemented.
- The memory management instructions have not been implemented at this time, but should be easy to add.
- The MIC pseudo instruction has not been implemented; RAM is still valid.
- 4. The control statement must contain the F option.
- 5. The Bit Instructions must be coded as follows:

CBS MASK DEF WORD

6. Any instructions requiring an address is coded as follows:

LAX ADDR

The interruptable instructions automatically generate the required third word NOP without any programming effort.

LDA ADDR1 LDB ADDR2 MBT CNT

(Continued on page 6)

21MX TALK SELLING HP 21MX

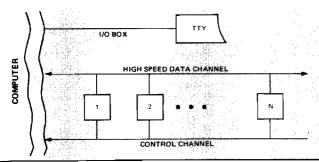
by Bill Senske



SITUATION ONE

The challenge is to convert the customer from situation one to situation two. We will have a series of articles showing you some ways to do this using the user microcodable 21MX.

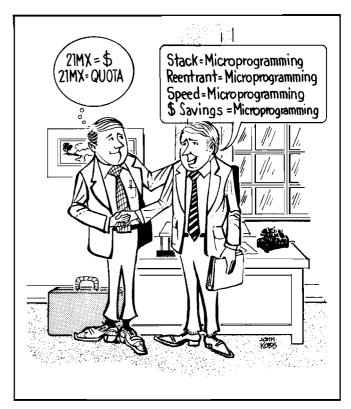
The first few of these articles will be based on some System Engineer (S.E.) prepared μ code used to sell in a DEC stronghold. The customer gave us a complex problem. He was implementing a test system that would require multiple high speed interrupts on one select code. The outcome of these interrupts would be an interruptable high speed output or input on another select code.



21MX PAPER TAPE ASSEMBLER - (Continued)

8. The assembler requires 4500 words base 10 plus any SIO drivers. Remaining core space is used for the symbol table

Copies of the paper tape assembler are available from Sales Development.



SITUATION TWO

One part of the solution was to design a stack that would allow for the interrupts. Another was to design μ code to handle the multiple interrupts on one select code and vector them to different software depending on the interrupting data word. The interrupting data word was a 16 bit word that defined the following:

1510	97	61
INTERRUPTING DEVICE	MODE	CONDITION
TAPE DRIVE	READ REQUEST WRITE REQ.	DATA READY PARITY ERROR ETC.
BLACK BOX 1	TEST INPUT OUTPUT	TEST #1

This interrupt handling μ code segment will be the subject of the next article. This article will emphasize how the 21MX can rapidly save the state of the registers on a stack so that other interrupts can be received and handled by the CPU. This "stack" routine results in the interrupt handlers being conveniently re-entrant.

(Continued on page 7)

21MX TALK - SELLING HP 21MX - (Continued)

The following code was generated which stores ("push") the state of all working registers (A,B,E,O,P,X,Y) in a user designated main memory stack. Another instruction was coded to "pull" and restore to the registers the same data from the stack.

This stack has the following characteristics:

- 1. The user may define the stack's upper and lower boundaries in memory. The stack may be as large as the available memory but would normally only be as large as the number of simultaneous interrupt times 6.
- 2. The code checks for overflow and underflow (with no additional hardware expense)
- 3. The stack "push" takes 11.7 μ second. The stack "pull" takes 12.4 μ second.

Here is the process the analyst went through to implement the microprogram:

- 1. Define the environment
 - a. Scratch pad 12 contains the current stack pointer
 - b. Memory location 00 contains the stack overflow address
 - c. Memory location 01 contains the underflow address
 - d. The overflow address of the stack less the stack size (an even number of multiples of the number of registers stored, 6) defines the underflow address
- 2. Flow chart and microcode the "push" instruction (see figure 1)
- Flow chart and microcode the stack "pull" routine (see figure 2)
- 4. Flow chart and code the initialization, overflow, and underflow routines. Those routines are not included herein for the sake of brevity.
- 5. Assemble the microcode
- 6. Debug the program using the micro debug editor
- 7. Load the program into WCS and use the new instructions.

An example of how this stack instruction might be used is described below. The customer would relate an octal number to each of the microcoded routines (105200, 105201). When coding his interrupt routine he would code the normal JSB,I in the interrupt trap cell. (This holds off interrupts until one instruction after the Jump.)

The interrupt routine using the push/pull instructions, as with the normal software routine, would have a NOP in the target address of the JSB. The next instruction would be the macro "push", "Octal 10500" in lieu of the normal instruction that turns off interrupts to the same select code. The interrupt servicing routine follows, and it is followed by the "Pull" Macro "Octal 105201" followed by a Jump Indirect through the JSB target address.

The performance comparisons of doing interrupt routines using the push/pull instructions in lieu of normal assembly language instructions are impressive. This instruction will give the programmer "two times" improvement in speed for saving the state of the machine. Further, the normal delay between the processing of interrupt would be only in the 10–20 microsecond range instead of the 100 to 200 microsecond range because the interrupt to the select code need not be turned off.

When using an "assembly language only" interrupt handler one would code as follows:

				Execution
Line #	Label	OP Code	Operand	Time
	Target	NOP	SHAMA	
2	Save	CLF	sc	3.3
3		STA	SVA	2.3
14.4		STB	SVB	2.3
199 JE 101 a 1 - 1		STX	SVX	2.3 5.2
5		HIGH CHARLEST AND A STATE OF THE STATE OF TH	SVY	DESCRIPTION OF THE PROPERTY OF
6		STY	3V Y	5.2
7		ERA,ALS		2.6
17.8		SOC		3.3
-9		INA	SAVEO	2.9
10	Interrupt	Routine		
		O TO THE STATE OF		
		0		
	Restore	LDA	SAVEO	1,4
		CLO		3,3
		SLA,ELA		2.6
Nik		LDA	SAVA	1.9
		LDB	SAVB	1.9
		LDX	SAVX	4.9
		LDY	SAVY	4,9
		STF	sc 1	3.3
		JMP	Target,I	3.2
AGA: Ir				Denvice
			12 12 12 12 12 12 12 12 12 12 12 12 12 1	55.0

When using the " μ coded interrupt handler" routine, the following code would be required:

#11.6 C 1472/\$60		47 631 \$5000 pr. 1 p . 1
A4.4.0000	: NEW 1984 12-12-	C. 45744 6886/575. C
1 Target	NOP	
gaada lal ye k∌∂a#		
	Mathathatika heira ya	
2 Save	OCT	105200 11.7
	C SERVICE SERVICE STATE	
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Figure 1. Flow Chart and Micro Code of Push and Figure 2. Flow Chart and Micro Code of Stack Pull Routine continued of page 8.



by LeRoy Nelson

The new OEM Purchase Agreement has been printed and mailed to all offices and Field Salesmen.

The major changes in this printing are on Exhibit B, D and W. This revision is dated 8/74 and should be used for all new negotiations.

Please destroy all old printed agreements in your office.

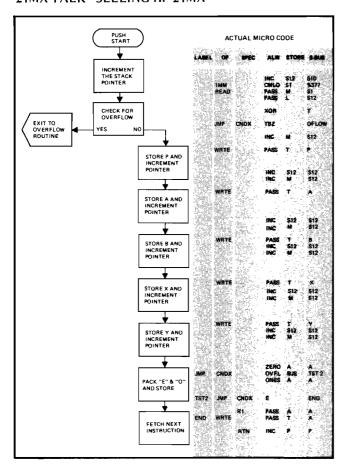


Figure 1. Flow chart of Push

MUMPS COMPETITIVE ANALYSIS

by Peter Palm

As a result of many calls on DEC's MUMPS operating system, the following is provided to keep you from getting sick from it:

MUMPS (MGH Universal Multiprogramming system) was developed at Massachusetts General Hospital (MGH) in Boston on a DEC PDP-9 (now three PDP-9's and a PDP-15) and was funded (with associated applications) by \$9 million of NIH grants over seven years. A report on the "Design and Implementation" of MUMPS and other MUMPS details are available from *Peter Palm* or *Sherry Washing* in Cupertino.

Today DEC has taken MUMPS from MGH, reimplemented it, and now supports MUMPS on the PDP-15, PDP-11/40, PDP-11/45 and DEC Data System 540 (on which MUMPS was renamed CDMS = Commercial Data Management System). DEC Data System 540 is priced at \$126,600 for a 48KB PDP-11/40 CPU, DEC writer, 40M byte disc pack, magtape, 300 lpm printer and four DEC VT05 CRTS.

A more efficient implementation of MUMPS is marketed by an MGH spinoff, MEDITECH, of Cambridge, Mass. They implemented MIIS (Meditech Interactive Information System). MIIS exists on PDP-15's and Data General Nova's

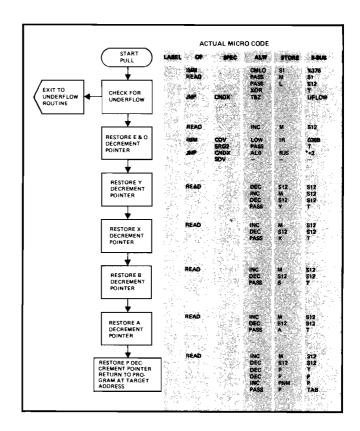


Figure 2. Flow Chart of Stack Pull Routine

with big 47M byte drives. Meditech is a medical timeshare utility (Approximately \$2-3M).

Between 50–70 MUMPS installations (mostly medical) exist around the world.

A MUMPS users group has been funded by NIH and they have developed a MUMPS "standard" which has been adopted by NIH and the Bureau of Standards.

SUMMARY

MUMPS is good for getting a project going since it is easy to learn and use (on-line interpretive language with high level file and string handling commands). But it is not good for production because it is slow (interpretive), disc bound with more than 5—10 terminals, and not very transportable (not easily documented and not many MUMPS-experienced programmers are available).

MUMPS STRENGTHS ARE:

1. Multiterminal Timesharing Access

This is similar to HP2000F in that it uses a round robin scheduler and an *interpretive* high level language for rapid program development. Overlays and subroutine calls are easily made.

2. Easy File Management Access to Multiple Terminals

A common data base is available to all terminals using commands built into the MUMPS language. [e.g. to put data in a file the Syntax is "Set \uparrow A (12,2,3.13) = XYZ" where \uparrow A is the file and (12,2,3.12) represents three levels on a tree structured file, separated by commas). A

(Continued on page 9)

MUMPS COMPETITIVE ANALYSIS - (Continued)

large number of commands and file status checks analogous to IMAGE commands are available as well as comprehensive utilities. Variable length string data is stored on the files thus saving disc space over a fixed-field approach (ala IMAGE).

3. Good String Handling Commands

For editing, concatenating, formatting, etc. CRT inputs and report outputs. This makes it easy to quickly prepare CRT screen prompts to gather data and output merged strings in reports.

4. Large Storage Capacity

Up to 320M bytes using 8-40M byte drives.

MUMPS WEAKNESSES ARE:

1. MUMPS is a Single Language System

MUMPS is nowhere nearly as well known as BASIC or FORTRAN, even in the medical world where MUMPS is strongest.

2. MUMPS Uses Interpretive Execution

MUMPS uses interpretive execution; therefore it is slower than compiled, assembly or SPL languages.

All code, including file management commands is interpretive and when a number of terminals get on the system competing for CPU time and disc access, MUMPS bogs down.

The Stanford University Pharmacy System, the the University of Washignton Clinical Lab System, the Mass General Systems all have this problem.

3. Only Tree Structured File Access Exists

It uses record numbers not alphanumeric keys. Any other type access, sequential, file indexes, linking ala IMAGE, or key access, must be implemented in the tree structure. And to get to the mass of data which is normally stored on level 3 (or lower) on the tree, it takes 3 disc access (sometimes this can be avoided if your previous reference was to the identical two levels above).

4. MUMPS Systems are Typically Disc Bound

In addition to all the extra disc accesses due to file access, (see 3 above), MUMPS segments user core into small (1–2K) partitions. This is good for fast multiterminal response time since many terminals each have some code in core, but it is bad when applications become large, because a great deal of overlaying is required. A typical program size in MUMPS before overlaying (or calling) is required in one 8 X 11 page of source code. Disc overlays, calls and file access bog the system down. Ask any MUMPS facility that has more than 6–10 users in an operational setting with terminals competing for common resources.

SUPPORT SERVICES SALES AMPLIFIER ON ITS WAY

by Al Wagner

Perhaps you've already seen it. If not, look around the office because we're already getting some good feed-back and plaudits from the field, so we know it's there. The Support Services Sales Amplifier provides a wealth of information on maintenance agreements and software support. Our most important objectives are to establish more organized methods and programs for customer support and promote the sales of maintenance agreements. This amplifier is a bit first step toward getting these accomplished.

There is one point brought out in the amplifier that needs more elaboration, that on commercial travel and per diem expenses. These expenses are no longer covered by the maintenance agreement and there are some good reasons why not. The flat-rate charges for extended travel only adequately cover the travel *time* that would be incurred by HP.

Take for instance the \$150 per month charge for distances greater than 250 miles. Knowing that the average system requires two visits per month and the added travel time per round trip is in the neighborhood of 2½ hours, and added cost per month comes to around \$150. It appears that, on the average, we have established an accurate charge. But, it isn't adequate to cover the commercial expenses.

In the U.S. this may seem trivial, but consider the International areas. Their incidence of incurring commercial expenses is much higher and the amount of those expenses is also much higher. This represents a significant factor in the costs of conducting International service business. In many cases an International maintenance agreement would be a losing proposition if travel isn't carefully considered.

PRICE LISTS

by LeRoy Nelson

A new price list designed for the end user has been printed and is being distributed. It contains list prices and maintenance prices for all computer and I/O subsystems. Both price lists, the OEM and End User, will be updated on a quarterly basis.

EDUCATIONAL NEWS

CURRICULUM LITERATURE AVAILABLE

by Pat Danzer

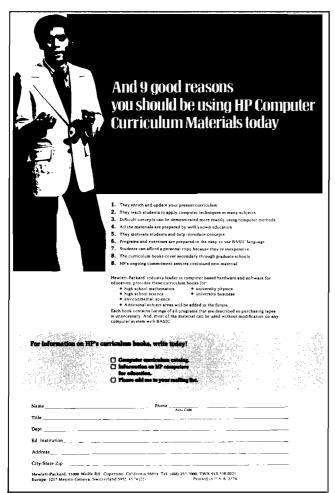
A new Computer Curriculum order form has just been printed. It is a yellow four-page brochure updated to include all of the recently released curriculum books. Each brochure includes a handy order form to facilitate orders. Please read the form carefully, for there has been a slight

(Continued on page 10)

CURRICULUM LITERATURE AVAILABLE - (Continued)

change in procedure. Field engineers should have already received a sample of these forms. Additional copies can be ordered using literature number 5952-5488(22).

The Computer Curriculum project also has a direct mail flyer. It is a great piece to display at shows, etc. The reply card allows people to ask for computer information in addition to curriculum materials. Available in quantities, a field engineer could do their own direct mailing. The reply is returned to Cupertino and the indicated request is filled. If you would like the reply card returned to you, simply initial or mark a corner of the form and we will forward it. Use order number 5952-4574(22), and start your mail campaign today!



TRAINING NEWS

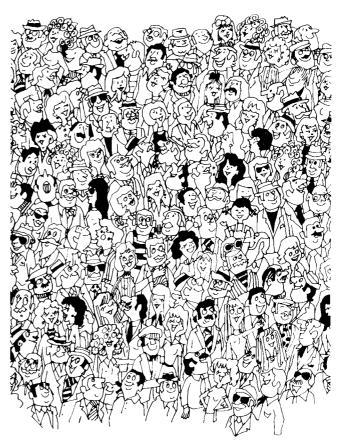
COURSE SCHEDULE CHANGES

by Frank Jackson

Please make note of the following changes and additions to the Customer Course Schedule which appeared in the July 1 issue, Vol. 1, No. 10.

- Additional 3000 System Utilization class at Cupertino October 21—November 1
- 2. Change IMAGE 3000 from October 28 to November 18
- 3. Add TCS class at Rockville October 21 and 22
- 4. Add TCS class at Cupertino November 25 and 26.

2000 SERIES ASSEMBLER AND DOS-III COURSE LOCATIONS



by Frank Jackson

HELP! We are rapidly running out of classroom space at Cupertino for all the necessary training courses and Rockville has lots of room and many Assembler and DOS-III classes scheduled. I would appreciate it if as many Eastern, Midwest and Southern customers as possible would attend the Rockville courses and relieve the pressure for other classes in Cupertino. If a customer has to come to California for other reasons, we will do our best to fit him into Cupertino courses.

2100 SERIES ASSEMBLER COURSES

by Frank Jackson

Please be aware that we have two different assembler courses, *Minicomputer Assembler for 2100 customers* and *MX Assembler for 21MX users*. These courses are not interchangeable and customers should attend the course for their particular CPU.

DATA SYSTEMS/AMD CUSTOMER COURSE **SCHEDULES**

by Frank Jackson

The schedules below have already been distributed to the field. Extra copies are available from Judy Martin, Building 41, Cupertino.



DATA SYSTEMS COURSES

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SEPTEMBER/OCTOBER AD SCHEDULE

by Michele Klein

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DATAMATION	3000/100				3000/100							
MODERN DATA	21MX						•					
COMPUTER DECISIONS	3000/100				3000/100							
COMPUTER DESIGN	21MX		-	1	21MX							
COMPUTERWORLD			3000/100				3000/100					
INFOSYSTEMS	2000/F				3000/100							
ELECTRONICS	21	мх			S/310							
ELECTRONIC NEWS	21MX	21MX	21MX	21MX	21MX	21MX	21MX					
SCIENCE					S/310							
INDUSTRIAL RESEARCH					S/310		_					
MEASUREMENT NEWS	3000/100				S/310							



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John Kobis - Art Director