

# COMPUTER SYSTEMS NEWSLETTER

*For HP Field Sales Personnel*

REINHARDT, HELMUT  
FRANKFURT  
HPSA



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FOR INTERNAL USE ONLY

# BOISE DIVISION NEWS

## Division News

### Thanks for a Great Year

By: John Whitesell/Boise

Thank you for making FY'77 an excellent year for Boise Division! With an especially strong OEM Magnetic Tape Drive order rate and an end-of-the-year surge of 2631A/35A orders, we finished over target for the year; and facility orders grew 33% over the previous year.

HP 263X sales are off to a great start, and we're making a lot of progress at getting our production rate up to match the order level. Mag tape drive sales continue to look very good, and line printer sales should greatly expand as we introduce some significant new products in the coming year. All in all, it looks like we're going to have another great year.

Thanks again, and best wishes for a prosperous New Year!

### Boise Division Product Support

By: Steve Bolen/Boise

The Boise Division Product Support Group has had quite a few additions and changes over the last year. I'd like to take this opportunity to update you on our group and their responsibilities.

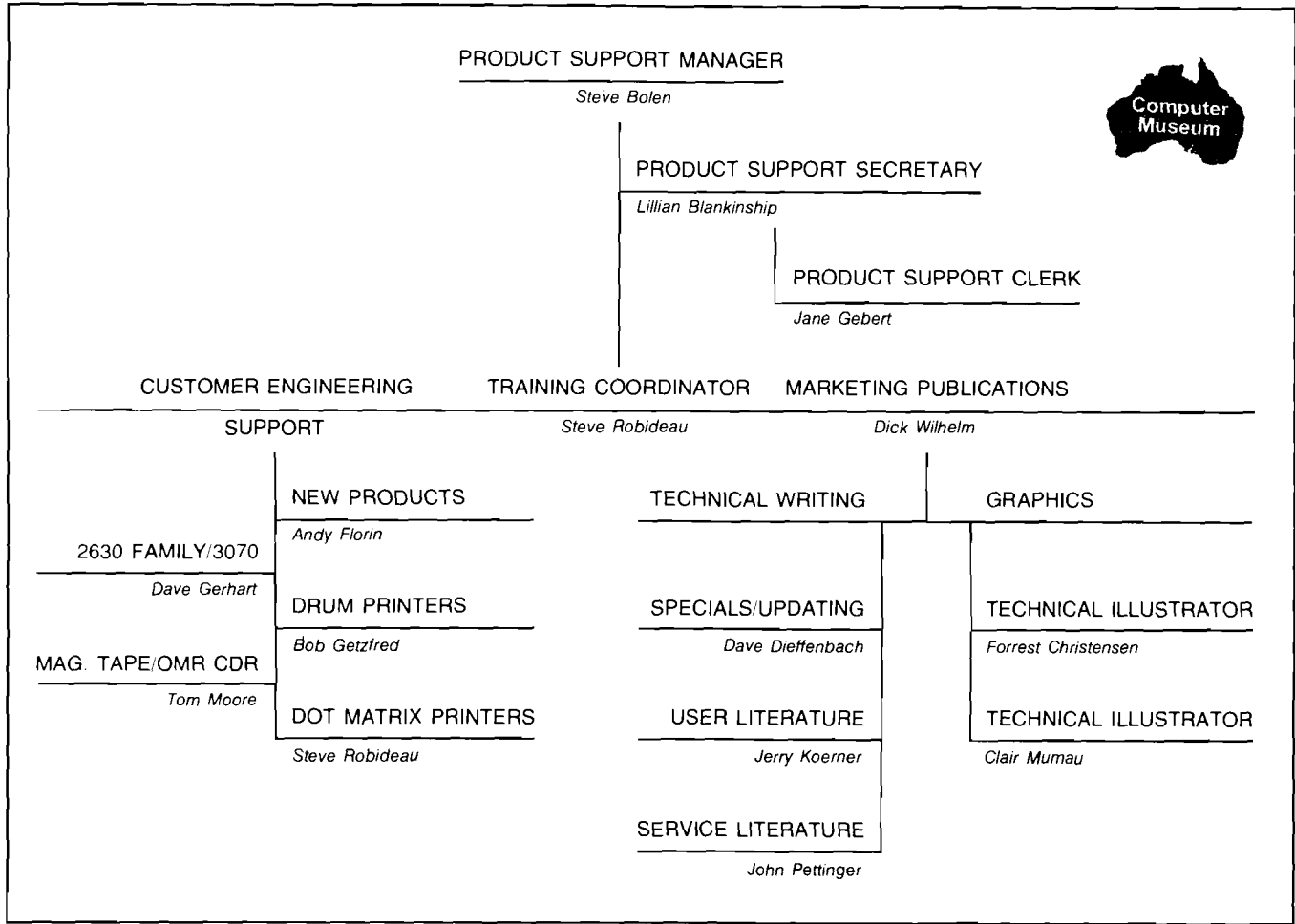
There are now five support engineers in Customer Engineering Support. The overall responsibility of this group is to provide on-line technical support to designated C.E. product specialists and develop new product support plans. *Bob Getzfred* is responsible for the Drum Printers which include the 2613A/17A/18A. *Steve Robideau* is responsible for the 2607A as well as a new product to be introduced in

1978. In addition, Steve has the responsibility for the Training Program at Boise. *Tom Moore* provides support for the Mag Tapes and the OMR. *Tom* is also working with the Calculator Products Group to develop a support plan for the 2631A/35A. Boise Division will have the factory support responsibilities for Boise products used on Calculator Systems. In the past this was a responsibility of the Loveland and Fort Collins Divisions. *Dave Gerhart* is responsible for the 2631A/35A support for Computer Systems Group. *Dave* developed the 2631A/35A support plan and is busy ensuring that all goes well. *Andy Florin* just joined our group from Canada and is currently stationed in the R&D Lab working with the engineers on an exciting new product. This early involvement by support ensures that products are maintainable by our field service organization.

The Marketing Publications Group under *Dick Wilhelm* is responsible for both Sales literature and Product Support literature. The two main areas of publication are Technical Writing and Graphics. Within the Technical Writing area, *Dave Dieffenbach* works primarily on updating manuals and writing service documentation for special product modifications, *Jerry Koerner* deals mostly with user literature such as operating manuals and reference manuals, and *John Pettinger* writes the service manuals required for support of Boise Division products.

*Forrest Christensen* and *Clair Mumau* satisfy the graphics needs for manuals, sales literature, presentations and various other Marketing requirements.

Last but not least is the core of our group, the secretaries. *Lillian Blankinship* has been with us for over a year and has recently added *Jane Gebert* to help with the secretarial and clerical duties. If for some reason the appropriate Product Support Engineer cannot be reached either *Lillian* or *Jane* will make sure somebody is contacted to give you a hand. Remember, we're here to help, so don't hesitate to call if you need us.



## Product News

### 26095A Now Available

By: Larry Andrews/Boise

The 26095A allows extra interfaces to be ordered for the 2631A/2635A. The accessory is structured as an 8-bit differential interface board and connector adapter for the 2631A. Options to the 26095A correspond to the interface options for the 2631A in both price and description, i.e., option 046 replaces the 8-bit differential interface board and connector adapter with an HP-IB interface board and connector adapter. Only one option can be specified per order.

**Ordering Information:**

**U.S. Price**

26095A	- extra interface for 2631A; 8-bit differential	\$ 400
-040	replace with RS232C without half duplex modem control (includes modem cable)	40
-041	replace with RS232C with 202-type half duplex modem control (includes modem cable)	65
-042	replace with 20 milliamp current loop	80
-044	replace with 8-bit TTL (emulates 9871A)	-50
-046	replace with HP-IB	50
-051	replace with RS232C with 202-type modem control, 2640 type edge connector	65

## Options, Anyone?

By: Steve Davis/Boise

We have noticed that there is some confusion in the field regarding what is provided with the 2631A and 2635A interface options. Hopefully, this article will clarify the situation.

### 2631A

The standard 2631A includes an 8-bit differential line driver internal interface. Neither the interface cable nor the system interface card (12845B) are included. The standard (parallel) front panel does not include baud rate, parity, or full/half duplex switches.

- 040 Replaces the standard internal interface card with EIA RS232C interface without modem control. Also replaces the standard front panel with a serial front panel which has baud rate, parity and full/half duplex switches. Includes 12.5 ft EIA modem cable (male-to-male). Does not include system interface.
- 042 Replaces the standard internal interface with 20 milliamp current loop. Also replaces standard front panel with serial front panel. Cable and system interface are not included.
- 041 Replaces the standard internal card with EIA RS232C with 202-type modem control. Also replaces standard front panel with serial front panel. Includes 12.5 ft EIA modem cable (male-to-male). Does not include system interface.
- 044 Replaces standard internal interface with 8-bit TTL parallel interface. Does *not* replace standard front panel. Does not include cable or interface card for CRT.
- 046 Replaces standard internal interface with HP-IB. Does not replace standard front panel. Does not include cable or system interface.
- 051 Same as Option 041 except RS232 connector is replaced with 2640-type edge connector. Does not include cable or system interface.
- 210 Includes standard 2631A plus 12845B interface kit (cable and system I/F card) and documentation for use with 2100/21MX series computers. Installation included.
- 240 Includes 2631A with Option 044 plus 13232J cable and 13238A interface card (which fits in the CRT). Installation not included.
- 300 Includes standard 2631A plus HP 3000 interface cable, documentation and installation. Does not include system interface card (30209A), which must be ordered from GSD.

### 2635A

The standard 2635A includes an RS232C internal interface without modem control. Includes 12.5 ft EIA modem cable (male-to-male). Does not include system interface.

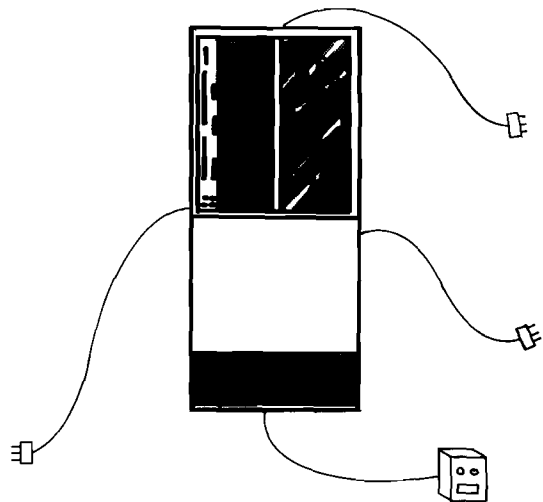
- 041 Replaces the standard internal interface with RS232C with 202-type modem control. Includes 12.5 ft EIA modem cable (male-to-male). Does not include system interface.
- 042 Replaces standard internal interface with 20 milliamp current loop. Does *not* include cable or system interface.
- 051 Same as Option 051 except RS232 connector is replaced with 2640-type edge connector. Does not include cable or system interface.

NOTE: "internal interface" refers to the interface inside the 2631A/2635A, while "system interface" refers to the interface in the computer system.

## More About Power Cords!

By: Mike Harrigan/Boise

In the November 15, 1977 issue of this publication I exhorted all of you to be certain to order the *proper power cord* option when ordering HP 7970 magnetic tape products. Well, I am now certain that there are people out there reading this *Newsletter* because I was nearly inundated with COMSYS messages and telephone calls all bearing a similar message: *Why can't Boise, like other divisions, supply the proper power cord depending on the country of order origination? Why not indeed! From now on Boise will be doing just that and the only time it is necessary to specify a power cord option is if you need one that is not the standard for the country of order origination. Now isn't that nice?*



# DISC MEMORY NEWS

## Product News

### 7900 Alive and Well

By: Jon Bolt/DMD

Contrary to rumors that have recently arisen, our 7900A 5-megabyte cartridge drive is in no danger of being obsoleted. Although it was introduced 'way back in 1971, it has maintained its competitive position admirably, and its ruggedness and durability have been unsurpassed by drives released years later. Even the performance of our 7900A has not been exceeded by drives of later vintage.

Apparently the marketplace recognizes these facts. In October, we received orders for over a hundred 7900A's. In fact, our three month moving average indicates an average order rate of a hundred drives per month! Why on earth would we ever obsolete a product that is in such demand?

Competitively, look how we compare to the DEC RK05F, which is DEC's 5-megabyte "entry level, low cost disc storage subsystem."

	DEC RK05F	HP 7900A
Average Access Time	75 mS	42.5 mS
Data Transfer Rate	180K bytes/Sec.	312.5K bytes/Sec.

From a pricing standpoint, you can see we also hold a significant competitive advantage.

	DEC RK05F	HP 7900A
First Drive	\$11,000	\$ 9,000
Add-On	\$ 5,100	\$ 8,700

Now as far as obsoleting the 7900A, we simply won't take away your gusto!

*In three minutes...  
An HP Service Engineer, with two screwdrivers can separate the disc into its basic service units.*

**HP 7920 - die Platte,  
die Ihre Zentraleinheit nicht  
warten lässt**

**HP 7920 - Il disco  
che non fa attendere la CPU**

**HP 7920 - le disque  
qui ne fait pas attendre  
votre unité centrale**

**HP 7920 - de schijf  
die uw CVE niet laat wachten**

**HP 7920 -  
The disc that doesn't keep  
your CPU waiting**

# DATA SYSTEMS NEWS

## Competition

### Another OEM Supplier

By: *Stu Kagan/DSD*

Many of you may feel that we share the OEM/minicomputer battleground only with DEC, DG, and other traditional mini-makers; but you're wrong. IBM is coming on strong!

As disclosed in the November 19, 1977 issue of *Computer World*, more than 50% of the year-old IBM Series/I orders have been coming from OEM's and Systems Houses. This came as a total surprise to IBM's marketeers for they had expected a far larger proportion of their business to come from End-Users for their new machine.

It can be deduced that the IBM sales force is covering the entire mini-marketplace well for their >50% OEM to End-User split is similar to HP/DSD and other vendor experiences. We consistently see more and more of our business coming from the OEM sector.

A couple of points relative to IBM's product offering should be made. They still *do not* offer OEM discounts of any kind — or even volume End-User discounts for that matter. In addition, the IBM Series/I family is still very young in its product life. But watch it! IBM is not limited in their development capability!

Due to IBM's apparent success within the OEM marketplace, there appears to be a large number of OEM's who want:

- A reliable vendor with unquestioned company strengths
- Modular growth-oriented computers and computer systems.
- Comprehensive and world-wide service capabilities

And, since we qualify on these three fronts and have in addition:

- A complete Board/Box/System product offering
- Extensive Operating Systems Software, Languages, Data Base Management and Distributed Systems Capability

- Super Discounts!

Let's not let any new OEM potential be lost because of lack of exposure to HP. We're here to help — call us!

## DSD OEM SALES DEVELOPMENT

## Product News

### On Quoting the "Special MUX Driver"

By: *Don Rowe/DSD*

I would like to take this opportunity to review the software driver for the 12920B/93537A Asynchronous Multiplexer that has been developed by DSD Special Engineering. The intended design objective for this "Special MUX Driver" was to provide multiplexed communications support for asynchronous low speed terminals (110 or 300 baud).

Recent requests for the quotation of additional features and modifications to the special MUX driver to adapt it for new applications have gone beyond the original objectives in a number of cases. It is clear to me now that the performance of the MUX hardware and special MUX driver has not been characterized in sufficient form and publicized to allow you in the field to properly evaluate whether or not it will solve customer applications.

We have started a project in the Lab to rectify this situation by making a subset of the current special MUX driver into a standard product with detailed specifications and sufficient operating characteristic information. However, until such time as the special MUX driver becomes a standard, data-sheeted and released product with characterization of its performance, quotation of the special MUX driver will in general be authorized only for customers who have previously purchased the driver and have experience with it. It may also be authorized for a few very carefully reviewed new customer applications which clearly do not approach the limits of the special MUX capabilities as enumerated below.

In order to ensure that MUX software is quoted for applications in which it does fit and perform up to the customer's expectations today and in the future, we are implementing a plan on which we ask your help:

PART A. Before quoting the special MUX software to your customer, contact your DSD Sales Development Engineer to review the application requirements which must be met before DSD will accept an order for the special MUX driver. These requirements are summarized below. Each order accepted will have been approved by DSD Special Engineering and DSD's Marketing Manager.

PART B. Prior to shipment of the special MUX software, you will receive a letter from DSD Sales Development to give to your customer. This letter will clearly state the operating conditions and characteristics for which DSD will warrant and guarantee operation of the driver; future application changes which overstep the bounds of these operating conditions and characteristics will void DSD's warranty and guarantee of operation. We ask that you take this letter to your customer to review it with him/her prior to shipment.

The application requirements have been drawn up to ensure that we achieve customer satisfaction. Your DSD Sales Development Engineer has further details on these requirements which are summarized below:

1. The terminal is a 264X, 2752A, 2754A, 2749A, 2600A, 2615A/B, 2762A/B and no others. These are the terminals which have been tested and are known to work.
2. The maximum aggregate throughput from all ports into the multiplexer is 600 characters per second or less, with no more than 240 characters per second in block mode; 16 terminals each operating continuously at 300 baud is within this maximum aggregate throughput. At 600 characters per second, servicing the 12920B's single character buffer consumes the substantial majority of the cpu's available cycles.
3. Half-duplex modem support for the 12920B will not be available until further notice.
4. System configuration must allow for the size of the special MUX driver. The version of the driver which supports 2752A/2754A TTY-type devices only requires 1970 words of memory plus an additional 26 words per terminal attached. Support of 264X terminals in block mode requires an additional 990 words beyond the first 1970 words. Support of 264X terminals in block mode with minicartridges requires an additional 1480 words beyond the first 1970. Program links could add another 200 words.
5. Since the multiplexer operates in privileged mode, it cannot be quoted for concurrent operation with RJE/1000, privileged DS/1000 communications links or any other privileged application.
6. The multiplexer software can be quoted with only one of the following:
  - a. BASIC/1000 D or BASIC/1000M, or
  - b. SPOOL with the File Manager, or
  - c. IMAGE/QUERY

These requirements are being enumerated to ensure that customers are satisfied with the special MUX software in their applications. The 12920B was designed to be and will perform best as a LOW SPEED ASYNCHRONOUS MULTIPLEXER for 110 and 300 baud terminals. Contact your friendly Sales Development Engineer for details on the above requirements and for implementation of the new special MUX driver quotation authorization plan.

## DS/1000 Networks Make Sales Connections

By: Bill Stevens/DSD

In its first month of life as a product, DS/1000 software and firmware has been ordered for over 50 HP 1000/21MX network nodes worldwide. Significantly, the bulk of these DS/1000 orders are for HP 1000 systems which would not have been sold to the customer without the Distributed Systems Network capability; also, they represent the start of networks which customers will be building up with more systems in the coming months and years.

For what types of applications has DS/1000 been ordered in November? Here is a brief sample:

- For a manufacturer of heart pacers—a two node DS/1000 network for incoming parts inspection stations (via HP-IB) at the satellite node and program development, data control and life testing at the central HP 1000 node.
- For a large tire manufacturer—seven DS/1000 nodes to start an eventual 20-node three-level, hierarchical DS/1000 network that will automate a whole plant . . . from rubber mixing through tire building to grinding and grading; the first nodes are already up and running, testing customer applications programs.
- For an automobile parts manufacturer—time and attendance factory data collection terminals on two HP 1000's linked via DS/1000 to an HP 3000 running DS/3000 in a line balancing application.
- For a plastic manufacturer—a two node DS/100 network which combines a disc-based HP 1000 with a memory-based HP 1000 which controls an extruder making items such as hamburger cartons. The HP 2240 acquires process data from the extruder for inputs to the control program in the HP 1000.

I hope that you have even more exciting applications under discussion with your customers. Remember that with DS/1000 you have generalized nodal network architecture that allows applications programmers and terminal operators to reach resources on any remote HP 1000 node. This is an extremely powerful and flexible product capability which your competitors do not have—not IBM, not DEC and not DG.



## 7920's — How Many?

By: Dave Bunch/DSD

Let's clarify the limitations on peripheral disc storage for RTE-II/III Systems. Because of the maximum track limitation, storage on only about six-and-one-half 7920's can be accessed by the File Manager. Up to eight 7920's may be utilized via executive calls.

## 3070A Utilities Article Price Correction

By: Mark Beswetherick/DSD

The article "3070 Utilities Make 3070 Programming Easy", which appeared in the Nov. 15 Newsletter, contains incorrect price information. The 3070A Utilities on 800 bpi or 1600 bpi mag tape cost \$50, not \$30 as stated in the article. Here again are the part numbers for the 3070A Utilities, along with correct prices:

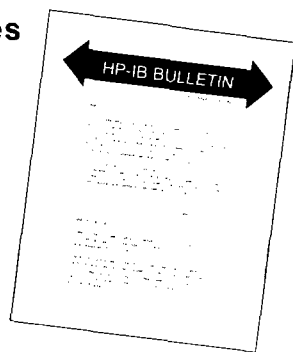
HP 3070A Terminal Utility Subroutines for RTE and HP-IB Devices

22682-13376 (2644/2645 Cartridge Tape) ..... \$80  
 22682-10976 (800 bpi Mag Tape) ..... \$50  
 22682-11976 (1600 bpi Mag Tape) ..... \$50



## HP-IB Bulletin Makes Its Debut

By: Neal Kuhn/DSD



The first copy of the HP-IB Bulletin has been released. It is an internal support memo for instrument field engineers and HP-IB specialists. The objective is to share the latest information on HP-IB, user applications, and answers to questions. *George Stanley*, its author, is well aware that you are inundated with paper—data sheets, memos, and newsletters, so he does NOT intend to publish this bulletin on a regular basis, but rather on an irregular basis, whenever he has information of value to pass along. Copies can be obtained directly from *George* in Building 18 in Palo Alto.

Contributions, applications, and helpful tips are solicited. Also, let us know what problems you encounter and what supplementary information you need. This bulletin is a forum

for exchanging HP-IB information, so we'd appreciate feedback from some "active talkers".

WHAT: HP-IB BULLETIN  
 WHO: GEORGE STANLEY  
 WHERE: BUILDING 18  
 PAGE MILL ROAD  
 PALO ALTO, CA 94304  
 (415) 493-1501 Ex. 4219

## HP-IB Talkers and Listeners

By: Neal Kuhn/DSD

We have gotten calls from you, wanting to know what addresses are preset into HP-IB devices at their factories. *Janet Weidon* has helped compile the following chart, giving the commonly pre-set address for each device, and any comment. Remember that these are the addresses that are normally set. They could have been reset by Quality Assurance when tested, so always check the address before using a device for the first time.

### List of Factory Preset HP-IB Instrument Addresses

Product	Talk/Listen ASCII Characters	5-Bit Decimal Equivalent	Comments
<b>STIMULUS</b>			
3320B Opt. 007 frequency synthesizer	3 S	19	
3330B automatic synthesizer	D \$	04	
3335A frequency synthesizer	D \$	04	
6002A Opt. 001 DC power supply	%	05	Listen only
8016 Opt. 001 word generator	1	17	Listen only
8018A word generator	1	17	Listen only
8165A signal source	P 0	16	
8620C Opt. 011 sweep oscillator	F &	06	
8660A/C Opt. 005 synthesized signal generator	3	19	Talk only
8671A microwave frequency synthesizer	3 S	19	
8672A synthesized signal generator	3 S	19	
59308A timing generator	J *	10	
59501A power supply programmer	&	06	Listen only
<b>MEASUREMENT</b>			
436A Opt. 022 power meter	- M	13	
3437A DVM	X 8	24	
3438A DMM	W 7	23	
3455A DVM	V 6	22	



List of Factory Preset HP-IB instrument Addresses (Continued)

Product	Talk/Listen ASCII Characters	5-Bit Decimal Equivalent	Comments
3490A Opt. 030 DVM	V 6	22	
3495A scanner	)	09	Listen only
3570A network analyzer	A !	01	
3571A spectrum analyzer	Q 1	17	
3745A/B selective level measuring set	J *	10	
3747A/B selective level measuring set	J *	10	
3754A switch controller	>	30	Listen only
4261A Opt. 101 digital LCR meter	Q 1	17	
4262A LCR meter	Q 1	17	
4270A Opt. 101 automatic capacitance bridge	Q 1	17	
4271B digital LCR meter	Q 1	17	
4272A Opt. 101 preset C meter	Q 1	17	
4282A Opt. 101 digital high capacitance meter	Q 1	17	
4942A Opt. 101 TIMS	J *	10	
4943A TIMS	J *	10	
5312A interface (talker) for 5300B system	J *	10	
5328A Opt. 011 universal counter	Y 9	25	
5340A Opt. 011 automatic microwave counter	C #	03	
5341A Opt. 011 automatic microwave counter	C #	03	
5345A Opt. 011 plug-in counter	R 2	18	
5353A Opt. 011 Channel C plug-in	[ ;	27	
5354A Opt. 011 frequency converter	Q 1	17	
5363A time interval probes	Q 1	17	
8503A Opt. 001 S-parameter test set	T 4	20	
8505A Opt. 001 RF net- work analyzer	S 3 P 0	19 16	Source Processor
8568A spectrum analyzer	R 2	18	
9411A switch controller	E %	05	
59303A D/A converter	B "	02	
59306A relay actuator	P 0	16	
59307A VHF switch	P 0	16	

Product	Talk/Listen ASCII Characters	5-Bit Decimal Equivalent	Comments
59309A digital clock	Z :	26	
59313A A/D converter	L ,	12	
59500A multiprogrammer interface kit	W 7	23	
DISPLAY			
5150A Opt. 001 thermal printer		SP 00	Listen only
9871A Opt. 001 impact printer	A !	01	
9872A X-Y plotter	E %	05	
59403A numeric display	0	16	Listen only
STORAGE			
3964A Opt. 007 instru- mentation tape recorder		1 17	Listen only
3968A Opt. 007 instru- mentation tape recorder		1 17	Listen only
8501A storage normalizer	N	14	
TRANSLATION			
3070A data entry terminal	] = ( >	29 30	Factory set to 30 when used as a serial link to communi- cations module. Factory set (jumpers) to 29 when used via keyboard.
59301A ASCII-to-parallel converter	P 0	16	
59403A HP-IB common carrier interface	1 2	17 18	Local Remote
CONTROLLERS			
System 1000 computer (59310B card)	P 0	16	
9815A desktop computer	U 5	21	
9820A/9821A desktop computer	U 5	21	
9825A desktop computer	U 5	21	
9830A/B desktop computer	U 5	21	



## Division News

### Expanded SE Training Program for 1978

By: Jane Seligson/DSD

Data Systems Division has a full calendar of internal courses on the schedule for 1978. Thirty-three classes ranging from introductory levels to advanced techniques will be taught at convenient intervals which allow many consecutive follow-ons.

All new equipment is already on-hand for these classes and has been specifically configured for maximum student use. More lab time will be available than in the past since we don't have to share systems with customer training. The terminal classes have been designed for the SE, they are not rearranged customer classes.

The following DSD courses appear on the group schedule:

1. SE Level One: A four-week introductory course. Covers 2645A, RTE, Assembler, IMAGE, general information on DSD products and groups.
2. SE Level Two: One-week course on the internal operation of RTE, RTE's hardware environment, and the use of RTE utility programs.
3. OEM Design: One-week course covering advanced interface design and I/O techniques associated with 21MX series including Driver writing procedures.
4. Operations Management: One-week course will examine on-line data collection and monitoring, control and reporting of production processes.
5. Instrumentation: One-week course on measurement and control, product test, data acquisition and process monitoring applications.
6. Computation: One-week course. Engineering/scientific problem solving, computer aided design/simulation/analysis, engineering data management/analysis.
7. Data Communications: A two-week course covering DS/1000 level one, level two, and multi-point 1000.

To register for any of these classes, contact *Roxanne Fraga*, the Group Training Registrar, at extension 2007 at Cupertino. More detailed information on the content of these courses will be mailed out shortly.

## Sales Aids

### CSG's Environmental Qualifications Sales Video Tape

By: Mike Cohn/DSD

Customer visits are an integral part of our growing computer business. The highlight of many of these factory visits has been the vibration test to demonstrate the quality of our

equipment. For your customers who are unable to have a factory visit, we have just completed a high quality color video tape on environmental qualifications testing. Explored are the various tests and procedures applied to our products to ensure they meet or exceed our published specifications.

The tape was previewed at your annual sales meetings and received a very favorable response. It is a fine sales aid to promote our high reliability. Copies of the "Environmental Qualification Testing" video cassette are orderable on HEART as part number 90694Z at \$30.

### HP-DSN Gets Editorial Plug

By: Bill Stevens/DSD



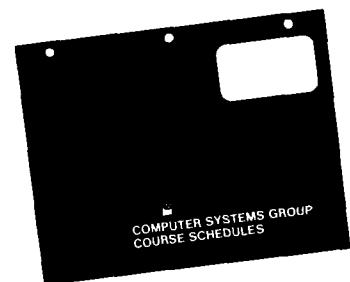
In the "Undercurrents" section of the November *Computer Decisions* (page 2) you'll find the following assessment of HP-DSN:

"And far away on the West coast, Hewlett Packard is pushing hard to publicize what looks like the best scheme for distributed computing any vendor, big or small, has come up with yet."

Not bad for openers!

### The Cat's Meow: Customer Training Schedules

By: Jane Seligson/DSD



The new domestic Customer Training schedule for all computer divisions was released Nov. 15. This schedule is distributed to 2600 field and division people and 3300 copies are bulk-mailed to foreign and domestic field offices. It is updated quarterly and has all the necessary order/price information one needs to know about any customer class on the Corporate Price List.

It seems there are still some individuals who don't know how to get hold of additional copies. These are a free sales literature item and can be ordered in any quantity from the Corporate Literature Depot, Bldg. 9B in Palo Alto. The part number is always the same: 5953-0841; but it appears in a different color every printing. This time it is an unmistakable orange. These schedules are available for your use—please take advantage of them.

# DATA TERMINALS NEWS

## Product News

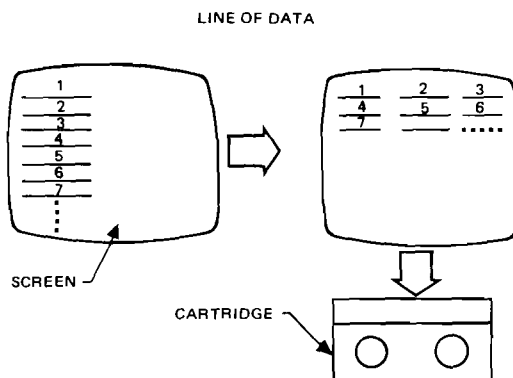
### How to Store a Graphics Picture -

By: Christian Graff/HPG

There is still some confusion on how to store a graphics picture on cartridge tape. To reemphasize the article by *Rich Ferguson* on this subject published in the *Computer Systems Newsletter* issue of September 15, here is some more information:

1. A graphics picture is generated from escape sequences and can be stored only in the form of escape sequences on tape. No way you can retrieve a "dot image" from memory to store it as such or send it back to the computer.
2. When doing trial graphics and creating a picture on the screen to be stored on tape, perform the following steps:
  - a. Get graphics cursor on screen
  - b. Move cursor to desired starting position
  - c. Move pen to current cursor position
  - d. Get rubberband line (optional)
  - e. Switch into "Display Functions" mode
  - f. Draw your picture by *moving* cursor around and *drawing* your vectors
  - g. Switch out of "Display Functions" mode
  - h. Record the escape sequences generated in alpha numeric memory onto tape.

Use Edit Mode if you anticipate a complex picture which will cause escape sequences to overflow memory. You are now ready to play your tape back. If you need to increase the recording efficiency or read back speed, please refer to soft key application #2 by *Eric Grandjean*, entitled "Off-Line Data Compactor" published in the Vol. 2, No. 20, Sept. 1, 1977 issue of the *Newsletter*. This application will take the original tabular vector coordinates data and compact it into three columns across the screen as shown below.



3. When a picture is sent from a computer to the terminal, perform following steps to store it on store it on tape:
  - Specify "to" devices as display and left (or right) tape.
  - Go into RECORD mode.

The picture gets sent to the screen and the corresponding escape sequences to the tape. You are now ready to play your tape back!

**13260A/B: Beware of Differences!**

By: Eric Grandjean/DTD

The 13260A and B have two new options to account for differences of firmware of the 2648A and the 2645K. When you order a 13260"A" or "B" separately (add-on), please beware of the terminal it's for, and order the appropriate option (003 for 2648 or 004 for 2645K).

There is, of course, no additional charge for these options. These two new options are on the December CPL.

**Softkey Application Note #15 Generating Mailing Labels**

By: Bill Swift/DTD

You don't need a full-fledged computer to run off your mailing labels! In fact, all you need is a printer and a 2645A or 2648A with tape cartridges. Record your names on a tape cartridge using a fixed number of lines for each name/address combination. Then load one of your soft keys with the following sequence:

```

L
EhEjEe&a3Rf&p1s3dBf&pBf&pBfhf&p3s4dBf&pBf&pEe&pEe&pEe&pBf&pEe&c177417a360dd10D
    
```

In this case, the addresses we used required three lines and the spacing for a gummed label was six lines. The soft key was programmed to address the cursor three lines from the top of the screen and then read three lines from the left tape to the display. Then the top six lines are read from the display to the printer. The last part of the sequence causes the key to execute itself and allows you to print labels until you run out of names on your tape cartridge. If your addresses require a different number of lines or if your labels are a different size, simply adjust the screen addressing sequence and the number of E<sub>c</sub>&pB sequences used for reading and writing.

**Basics of How to Erase a Graphics Vector**

By: Christian Graff/HPG

How to erase a line that has been drawn on the screen of the HP 2648 screen is a question often asked in the field. Remember, there are four basic drawing modes available to draw vectors, which can be selected through an escape sequence described in pages 3-6 of your HP 2648A Reference Manual:

CLEAR MODE	:	Esc*m1A
SET MODE	:	Esc*m2A
COMPLEMENT MODE	:	Esc*m3A
JAM MODE	:	Esc*m4A

The easiest way to develop graphics is to go into Complement Mode by issuing from the keyboard the appropriate escape sequence right from the start, so that erasing a vector will mean only redrawing it a second time! All graphics bits set the first time will be toggled (turned off) when redrawing the vector or part of the vector. Erase will occur between the point you did a *move* cursor, and the point you did a *draw* vector.

If, however, the default drawing mode (Set Mode) was used to create the picture, you will have to go into *Clear Mode* by

issuing the escape sequence from the keyboard before redrawing the vector—don't forget to switch back to Set Mode before resuming your picture drawing!



**How to Buy the Graphics Quick Reference Guide**

By: Rich Ferguson/DTD

It appears as if some amount of confusion has developed from those who really wanted to buy the 2648 Quick Reference Guide. Actually, it's quite simple. Have your Order Processing Department initiate what is known as an I.O.S. and send it like any other I.O.S. to Data Terminals Division. The transfer price will be approximately 38¢ each. DTD will then simply bill your sales office for the amount ordered. They should be available on a two to four week turnaround basis.

That's all there is to it, folks! Go get 'em and sell graphics!

**APL on the 13349A***By: Rich Ferguson/DTD*

For those of you who have customers who have already bought or are currently buying 2641A APL terminals and want hard copy of APL, such a deal we have for you!

The 13349A printer subsystem provides optionally APL with overstrike. To get APL, you simply order Option 004 to the 13349A and a package of three APL print discs will be merrily included with your printer subsystem. If your customer already has a 13349A and wishes to purchase extra APL print discs, you can order a package of three under Part Number 1530-2022.

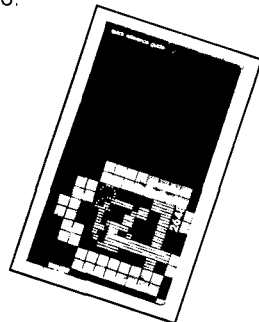
So, there you have it! The hard copy you've been waiting for with APL!

**Erratum in the 2648A Quick Reference Guide***By: Eric Grandjean/DTD*

On page 14 of the 2648A Quick Reference Guide (P/N 02648-90004), please note that the correct "Select Drawing Mode" parameters are the following:

0 (No effect), 1 (Clear), 2 (Set), 3 (Complement), 4 (Jam)

You will find a full description of "Select Drawing Mode" functions in the 2648A Reference Manual (P/N 02648-90002), page 3-6.

**2645 Customer Maintenance Training***By: Jim Sebring/CSD*

A 2645A CRT Terminal Maintenance Course for customers is now available from the CSD - Sunnyvale Training Center.

The course will include functional hardware/firmware operation, terminal alignment and adjustment, and troubleshooting and repair techniques. A large part of classroom time will be devoted to hands-on operation and troubleshooting.

Price for the 3-day course is \$300 per student.

**2645A Class Dates:**  
February 22, 23, 24  
March 20, 21, 22

Class size is limited to the first 12 students registered. For information contact *Cindy Harris* at (408) 735-1550 ext. 2670.

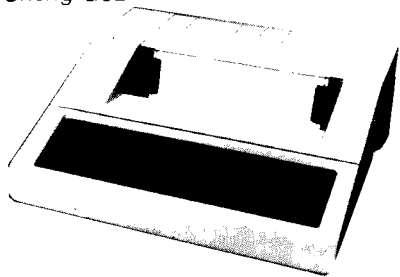


# GENERAL SYSTEMS NEWS

## Product News

### Hardcopy Consoles for HP 3000 Series I and Series II

By: Chosen Cheng/GSD



The hardcopy console supported on the HP 3000 today is the 2762 Terminet (System Option 124). GSD will support Boise Division's 2635 Printer/Terminal as an optional system console beginning in mid-calendar 1978. There will be a transition period of orders shifting from the 2762 to the less expensive, higher capability, HP-supplied 2635. Until the 2635 is supported, consult the factory before transmitting any orders requiring a hardcopy console. Several options are available to you in advising your customers:

1. Qualify the customer's need for a system console:
  - a. Perhaps a 264X CRT really meets the need for a console.
  - b. If a hardcopy console is desired, can the customer use an available 264X CRT as console until a 2635 can be ordered and obtained from Boise?
  - c. If an immediate hardcopy console is essential to the system sale, there are some used or consignment 2762 Terminets available for sale at a discount. Contact GSD Order Processing for the latest info.
  - d. As a fourth option, we can obtain Terminets on an 18 week availability.
2. Contact GSD Order Processing before transmitting any system orders with hardcopy console options, so that we can help satisfy your customer's requirements in the best way possible.

### 7920 Available on the HP 2026

By: Dick Baumann/GSD

Effective January 1978, the large capacity, "rock-solid" 7920 Disc Drive may be attached to the 2026 system. Option 010 to the 19702A (the basic 2026 system) replaces the standard 7905 drive with the 7920. Domestic price for this option is \$4200; BMMC is \$-12.00. Up to six 7920's may be attached, including the one furnished with Option 010 (order 7920S for drives 2 thru 6). The 2026 uses all the 7920's capacity so that's a total of 300 Mbytes of disc storage! Two disc packs will be shipped with Option 010; one has pre-recorded system software and the other (a "backup" pack) has pre-recorded system software and diagnostics. Mixing of 7905 and 7920 drives on the same 2026 system is not possible.

Early indications are that a majority of 2026 orders will have the 7920 drive. There have been a lot of requests for it already. Why is this so? Customers want to get copies of some of their central data files out to the remote sites where the information is really needed. They may not want the remote sites updating those files. They'd prefer to do that centrally, transmitting fresh copies or batches of updates down to the 2026. Doing it that way, they have no worries about the data being consistent from one site to another.

Our own company is a great example of this trend. Applications like SODA (Sales Office Data Access) will require 7920's to hold the customer, product, and order files that are part of the system. What does HP get out of distributing data files to its remote sites? To quote the SODA User's Guide: "The advantages of this new application are:

- The information is current. The local files are, at most, one day behind the Corporate files.
- The information is quickly and easily retrieved.
- The information may be used at the same time by different people in different ways."

HP isn't the only company that's moving in this direction, as you well know. Lots of other companies are "seeing the light" and 2026 systems with 7920 drives will fit into their plans!

**HP 2000 Contributed Library Ordering***By: Ralph Manies/GSD*

Ordering the HP 2000 Contributed Library is simple and straightforward now that consolidated tapes for each volume are available. The HP 2000 Library comprises five volumes and an addendum which updates volumes I-IV:

Volume I	Data Handling, Testing, Debugging and Programming Aids
Volume II	Math & Numerical Analyses, Probability & Statistics, and Scientific Engineering Application
Volume III	Management Science, Operations Research, Business & Mfg. Applications
Volume IV	Education
Volume V	Games
Addendum	To Volume I-IV

Your customer can order a complete library package (tapes and manuals), a documentation package (manuals), individual tapes, or individual manuals. The applicable part numbers are:

Part Number	Description
36000-10001	800 bpi tape only, Volume I of Library
36000-10002	800 bpi tape only, Volume II of Library
36000-10003	800 bpi tape only, Volume III of Library
36000-10004	800 bpi tape only, Volume IV of Library
36000-10005	800 bpi tape only, Volume V of Library
36000-10006	Addendum to Library
36000-11001	1600 bpi tape only, Volume I of Library
36000-11002	1600 bpi tape only, Volume II of Library
36000-11003	1600 bpi tape only, Volume III of Library
36000-11004	1600 bpi tape only, Volume IV of Library
36000-11005	1600 bpi tape only, Volume V of Library
36000-11006	Addendum to Library
36600-10901	800 bpi Library Package. Includes a magnetic tape which contains software for Volumes I-V, and the Addendum, and manuals for Volumes I-V, and Addendum.
36600-11901	1600 bpi Library Package. Includes a magnetic tape which contains software for Volumes I-V, and the Addendum, and manuals for Volumes I-V, and Addendum.
36600-10001	800 bpi Magnetic Tape contains software for Volumes I-V, and the Addendum.
36600-11001	1600 bpi Magnetic Tape contains software for Volumes I-V, and the Addendum.
36600-90001	Manual Package for Volumes I-V, and the Addendum.
36600-91001	Manual for Volume I; Data Handling, Testing, Debugging and Programming Aids.
36000-91002	Manual for Volume II; Math and Numerical Analyses, Probability and Statistics, and Scientific Engineering Applications.
36000-91003	Manual for Volume III; Management Science, and Operations Research, Business and Manufacturing Applications.
36000-91004	Manual for Volume IV; Education.
36000-91005	Manual for Volume V, Games; "What to Do After you Hit Return".
36000-92001	Manual for the Addendum to Volume I-IV.





## Developing a Network the HP Way

By: Pete Van Kuran/GSD

The following article appeared in the October issue of *Infosystems*. It describes, in a fairly complete way, the development of distributed data processing at HP. Permission to reprint in its entirety was granted by *Infosystems*. Copyright 1977, *Infosystems*, Hitchcock Publishing Company.

### Distributed Processing

# Developing A Network

**Sound management has led this company to develop an advanced system at a time when few examples of distributed processing can be found.**

by Neil D. Kelley  
Senior Editor

When a billion dollar company has 40 worldwide divisions manufacturing more than 4,000 products, placing data processing power where it is needed becomes a formidable task. To meet the information needs of sales offices, as well as the information and processing needs of manufacturing and corporate personnel, Hewlett-Packard (HP) has developed, for its own internal use, a distributed processing network composed of more than 130 computers in 94 sites.

Computers at Hewlett-Packard sales offices transmit data on new orders to a central computer. There the information is automatically routed to various divisions where different products in the order will be manufactured. Divisions are separate profit-and-loss centers using their own computers and "factory-management"

software for daily operations while periodically interacting with headquarters for that portion of processing which is a joint operation. The same type of computer interface is encouraged between sales outlets and headquarters since the company recently is moving toward distribution of data base to sales offices.

"Because we were into distributed processing early, we went through a great number of evolutionary stages," states Bruce Wholey, vice president, corporate services. "I suspect other companies just now examining the distributed approach can skip some intermediary steps we took. Others might want to move computer power and data files to sales locations more quickly than we did, for example." Wholey says that even with the well-developed network now used, further expansion is planned.

Speaking in more general terms, it is clear the HP spokesman would give this advice to others moving into distributed processing.

- Structure of hardware and software systems should match the company's organizational structure, with network design reinforcing corporate management philosophy.

- Full implementation of a distributed system may take years to

achieve and will, most likely, be an on-going, continual process for a growing company.

- Users should zero in on communications costs (i.e., telephone expense) as the greatest cost-saving opportunity.

"Distributed processing at this company evolved largely from the corporate dictum that divisions operate as separate profit-and-loss centers. The availability of HP equipment, designed for sale to outside customers, was also a factor. Finally, to be frank, we were at least partly lucky in achieving what we have," Wholey says.

"We feel our in-house needs are handled well, at a minimum cost for the performance obtained, especially when it comes to requirements for communications between computers," he adds.

#### Beating telephone costs

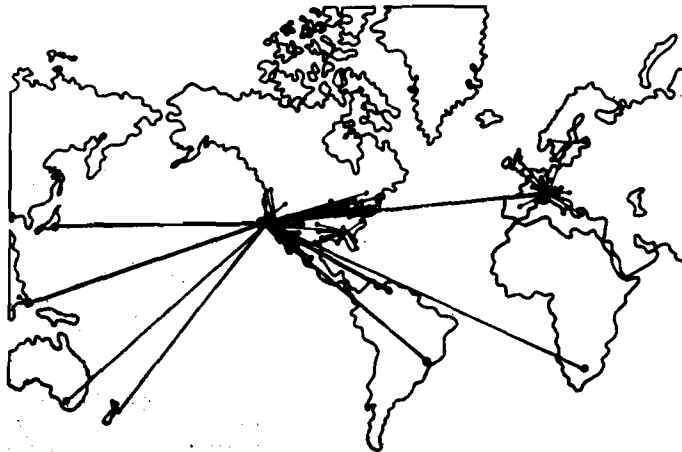
Two factors help cut down HP's telephone bill for transmission of data and intra-company electronic mail:

- 1) HP believes necessary data communications between computers should be carried out with standard dial-up telephone service and in a batch mode, rather than on-line.

- 2) Company philosophy favoring divisional autonomy has resulted in individual operating units making use of local computers, and subsequently, relying less on telephone data links to a central computer center.

"Our primary means of communications is to poll outlying sites twice daily and send information twice daily on average," explains Cort Van Rensselaer, corporate information systems manager. He adds that less frequently, an outlying site may initiate communications by dialing into headquarters, but the remote-site computer is not usually kept on-line to the host. Data is processed and subsequently returned to the remote location.

Van Rensselaer defines remote job entry for HP's purposes as involving the use of Houston Automatic Spooling Operation (HASPO) workstations. Newly formed divisions will often use a minicomputer as a work-



Hewlett-Packard's worldwide distributed computing network links manufacturing facilities and sales offices with the company's central computer center in California. Headquarters can maintain central control through the network while corporate divisions operate autonomously.

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**Distributed Processing**

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station to communicate with the host unit for processing needs, until local processing power can be installed. Even in this case, the remote site is not usually kept on-line to the host.

"This process of inter-computer communications involving batch transmission distinguishes the HP mode of operation from the more expensive on-line, dedicated communications systems," he said.

HP makes use of its own hardware and software for compression and error correction of transmitted data. Use of standard dial-up telephone lines, data compression techniques and use of the batch mode for data transmission result in a telephone bill the company considers very low, in light of its distributed processing needs.

Cost for transmission of data and electronic mail is about \$23,000 monthly. This covers the telephone bill for links sending most of the 63 million characters processed daily by the headquarters computer.

The key summary word relative to communications is "batch," Van Rennselaer believes, and he warns: "Other DP managers may have difficulty in selling batch to internal users. Users tend to associate on-line operations with any type of processing, including distributed processing.

"I believe we've saved millions of dollars in communications cost by linking computers through the primary method of periodic batch transmission initiated by headquarters."

**International network**

The communications network involves more than telephone hooks directly between the host computer and each remote-site computer used for communications. World headquarters in Palo Alto, CA, is supported by "mini headquarters" in Geneva, Switzerland. European branches communicate with Geneva, which in turn uses its own host computer to link with Palo Alto. Additionally, some regional US locations use computers to collect data from nearby offices prior to linkage with the California corporate site. Other national and international sites communicate directly with headquarters.

The company uses its own HP Model 2026 computer at headquarters, plants and sales outlets for com-

munications, as well as for data base access at sales offices; the HP Model 3000 computers are most often used in manufacturing plants in a terminal-oriented, on-line mode for local data processing applications (no telephone expense involved). Larger IBM computers are usually used in the batch processing mode with headquarters having an IBM 370/168 and Geneva a 370/138, and several manufacturing sites also requiring the power of the larger IBM computers.

HP stresses the compatibility of its computer line with IBM's, and it would appear HP will keep some of the larger IBM units it now has, while replacing some of the smaller IBM units with HP Series 3000 computers.

In all, Hewlett-Packard in its own distributed processing network currently uses 12 IBM computers; 95 HP Model 2026 computers for data communications, data entry, store-and-forward, data storage and display, and remote job entry; and 35 Model 3000 computers mostly at division sites for local processing. The firm anticipates a total of 60 Model 3000s will be in use by the end of 1978. Hewlett-Packard manufacturing plants also use literally hundreds of HP Model 1000 computers for manufacturing control

**Electronics Move The Mail**

For seven cents transmission cost within North America and 15 cents overseas, Hewlett-Packard (HP) employees send intra-company electronic mail messages, "next-day-delivery" guaranteed. Up to 80-words-per-message transmissions are usually involved, and the system corrects errors introduced by telephone lines or other equipment. The sender keys in the message and, while viewing it on a CRT, makes typing or composition corrections. Completion of the store-and-forward step results in the sender being supplied a printed copy of the message upon actual transmission. A printer at the receiver's end receives the message and prints a copy no later than the next day. English-language messages in data format go over the same telephone line simultaneously with computer-formatted data.

"We developed the system for our own use," says Paul Ely, vice president and general manager, Computer Systems Group. "We have already replaced most overseas mail going between HP operations. Use of the message service within the US as a substitute for mail and telephone calls is growing as a time and money saver."

or engineering design.

While telephone expense for necessary data transmission has been kept down largely through the method of communications chosen, the corporate philosophy that each division should operate autonomously has also kept communications costs down while leading the company very naturally into distributed processing. Van Rennselaer explains: "Since the first division was formed in 1960, each division has been encouraged to operate as a separate business with its own individual style. Divisions are deliberately kept at a manageable size, with new divisions spun off and formed as quickly as can be logically justified."

He elaborates that this modus operandi has resulted in divisions becoming accustomed to using their own computers very early in the company's history, with less data communications costs required, since a lot of processing was carried out at regional locations rather than at headquarters. "Distributed processing was aided by another corporate mandate calling for strong central control over the dispersed network. Although it might appear to be paradoxical, strong central control is necessary. For example, we want a customer contacting even the smallest HP sales office to feel he is dealing with only one company. This becomes possible through standardization of certain procedures with central control."

**Updating sales data**

Currently the company is in the evolutionary stage of transferring data base files to sales offices, points out Horace Mockett, regional order processing manager, at HP's North Hollywood, CA, location. Sales outlets previously used the HP Model 2026 only for order entry and electronic mail, with data from this remote computer broken down by headquarters' IBM 370 into in-house manufacturing orders, which were then distributed to different manufacturing sites.

Sales outlets kept basic information about customers locally in manually prepared card catalog files. Once a week the outlet received a complete order status and price-delivery report from headquarters on microfiche. Daily, the remote-site office received, via its 2026 printer, a listing of changes to the microfiche report.

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**Distributed Processing**

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"So someone dealing with a customer on the phone might be going to the card file, microfiche reader and computer printout one after the other, often having to make the customer wait, or being required to call back after checking with a factory by telephone about order status," Mockett relates.

The answer involved installation of keyboard/CRT terminals with all information previously on cards, microfiche and printout now in the local sales office data files, updated daily by corporate.

A study on the move showed an office the size of the one at the Los Angeles Airport, requiring 16 terminals, could save \$26,000 a year with the new system. This would result from reduced manpower costs associated with information retrieval at sales outlets, reduced telephone expense and reduced cost in factory file maintenance.

**A unique solution**

Personnel at corporate headquarters and sales offices stress the importance of the HP 2026 computer primarily for communications. Division executives seem to feel installation of their own terminal-oriented real-time computers, HP Model 3000s, was a much more important development.

Lew Platt, with the Waltham, MA, division since its inception 11 years ago and now general manager, feels his medical equipment operation is unique since it was the first division outside California to install a 3000. He has a twist to the distributed processing theory of shifting processing away from headquarters. He finds the 2026 computer "useful in allowing us to transfer some processing we initially did here to headquarters, and off-load our computer this way."

He thinks the 2026 helps significantly with its electronic mail capability, although only about five percent of telephone transmission is absorbed with English-language messages, the rest going to data. "But, our major break came in 1974 when we installed the first of two 3000s. This gave us distributed processing capability within the division, users tapping the unit via terminals in real time. What data has to be processed in conjunction with headquarters goes

from the 3000 to the 2026 and then to headquarters," Platt says.

Waltham also used HP 1000 Series computers, originally for in-house scientific and engineering applications in the mid 1960s, with 1000s more recently being incorporated into finished medical electronics products.

Also in-house at Waltham is an IBM computer, upgraded from a 1401 when the division started, to a 360/25 and finally to a 360/30 at present. "It's no secret we're going to get rid of the 360/30, using an outside service bureau for some of its functions while simultaneously transferring operations to the 3000 in a gradual manner."

Currently, Waltham is splitting off a new division in Andover, MA, as part of what Platt describes as HP's "exportability objective, involving the start-up of a totally self-sufficient operation in a very short period of time. They'll have a 3000 immediately."

Bill Ashton confirms that his position as controller for the five-year-old Santa Rosa, CA, division is duplicated throughout the company with each division having its own controller. Ashton says his operation making test equipment was not ready for a 3000 when it started. "We upgraded the 370/135 very quickly to a 370/138. If we were starting today it might be a

different story. The 138 is a powerful machine but it rents for \$250,000 a year. The purchase of several 3000s even at the end-user price of about \$120,000 makes an attractive payback by comparison."

He adds that a 3000 was installed recently, "and I now believe on-line processing is more accurate than batch since you can correct erroneously entered data as soon as you catch it. With batch, you may not see the mistake until you get results a day, a week or even a month later."

Matt Schmutz, manufacturing manager, General Systems Div., Santa Clara, CA, points out his year-and-one-half-old operation started with two 3000s. The units are used for such applications as on-line engineering control, net material requirements planning, text editing, general problem solving, order scheduling relative to existing and planned inventory, finished goods inventory control and order status.

Perhaps he best summed up the attitude high-level policy would dictate most division executives should have, relative to HP's own internal use of computers and distributed processing. "The computer is a tool, it doesn't give us any trouble. We get along well with corporate data processing people. They do their thing and we do ours." □

## HP 2026 Speeds the Mail

By: Dick Baumann/GSD

Part of the *INFOSYSTEMS* article "Developing a Network" was the following paragraph which I borrowed (to make a special point, of course):

### Electronics Move The Mail

For seven cents transmission cost within North America and 15 cents overseas, Hewlett-Packard (HP) employees send intra-company electronic mail messages, "next-day-delivery" guaranteed. Up to 80-words-per-message transmissions are usually involved, and the system corrects errors introduced by telephone lines or other equipment. The sender keys in the message and, while viewing it on a CRT, makes typing or composition corrections. Completion of the store-and-forward step results in the sender being supplied a printed copy of the message upon actual transmission. A printer at the receiver's end receives the message and prints a copy no later than the next day. English-language messages in data format go over the same telephone line simultaneously with computer-formatted data.

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The "seven cents" and "fifteen cents" figures have generated a lot of interest (and amazement, by the way). Those are low numbers! Compare them to the cost of phone calls, postage stamps, and the like, and you know what I mean.

The figures include toll charges, as well as the depreciation of equipment and salaries of people at the "COMSYS CENTRAL" site in Palo Alto. The average message is 400 characters in length (figuring 5 characters per word). For the sake of comparison (I like comparisons like this one) the equivalent domestic TWX message would cost about 75 cents. That figure does not include TWX equipment rental or operator's salary. When you propose a 2026 network, you'll talk about data entry and data communications, but don't forget how much money your customer can save with electronic mail (plus the service is better).

## COBOL on the Series I? You've Got to be Kidding!

By: Jon Jacobson/GSD

*And they said let there be COBOL on the HP 3000CX.*

*And we suffered.*

*And they said let there be COBOL on the Series II with more core.*

*And we were pleased.*

Let's face it; the COBOL compiler is very large and when you have to run a large COBOL compile on a 128Kb system, it seems to take forever. So when you're in a sales situation to a COBOL customer you start your proposal with your HP 3000 Series II with 192Kb. Right?

Wrong! By not presenting the Series I you've already eliminated that customer who has set his budget to a maximum of \$100K. Now I'm not going to try to tell you that a Series I will compile COBOL faster than a Series II with a larger memory configuration. What I will say is that if your presentation is to an OEM, or a small COBOL shop with a couple of programmers, the \$75,000 Series I should be a definite consideration. Why lose the low end business simply because you didn't offer the customer an alternative?

The 128Kb Series I offers two versions of the same COBOL compiler for the price of one offering a distinct advantage to the budget-sensitive COBOL user. The COBOL B compiler on the Series I compiles and executes proportionately to the COBOL compiler on the Series II. However, there are cases where the COBOL programmer will create excessively large programs. At some point, usually between 2000 and 3000 lines, the symbol table will overflow the available memory. The COBOL C compiler, the same compiler that is on Series II, externalizes the symbol table and overflows this table to the disc, effectively eliminating program size restrictions. The resulting object code is the same with either compiler and there will be no differences in the execution of the program. The use of the disc greatly increases the length in time of compilation, and should be taken in consideration if large COBOL programs requiring extensive recompilation are a way of life to the customer.

The following series of tests were done to examine the differences in compilation time between the Series I and Series II. This seems to be the major area of concern expressed by the field, since the object code for a COBOL program would be the same on Series I or Series II. The only difference in performance would depend on the amount of core in the system.

The graph shown here represents 12 compiles ranging in size from 400 to 2500 lines. These were chosen randomly by length and expressed only to represent the differences in compilation time. This is not meant as an exact measurement of the length of compilation time on a specific sized COBOL program. All programs accessed a copylib and were measured by the size of the data area used during compilation as a more precise figure, since number of lines in a COBOL program is not indicative to the amount of code generated. For example, in this series of tests the 400 line program had a data area of 600 words while the 2000 line

program has a data area of 11K words. The tests were run on a standard Series I and a Series II with 192Kb. Both systems used an HP 7920.

Time is expressed in wall time and not CPU time for two reasons. CPU times between the Series I and Series II are not dramatically different and from a programming viewpoint the major consideration is turnaround time.

Comments:

The following assumptions could be drawn from this series of tests.

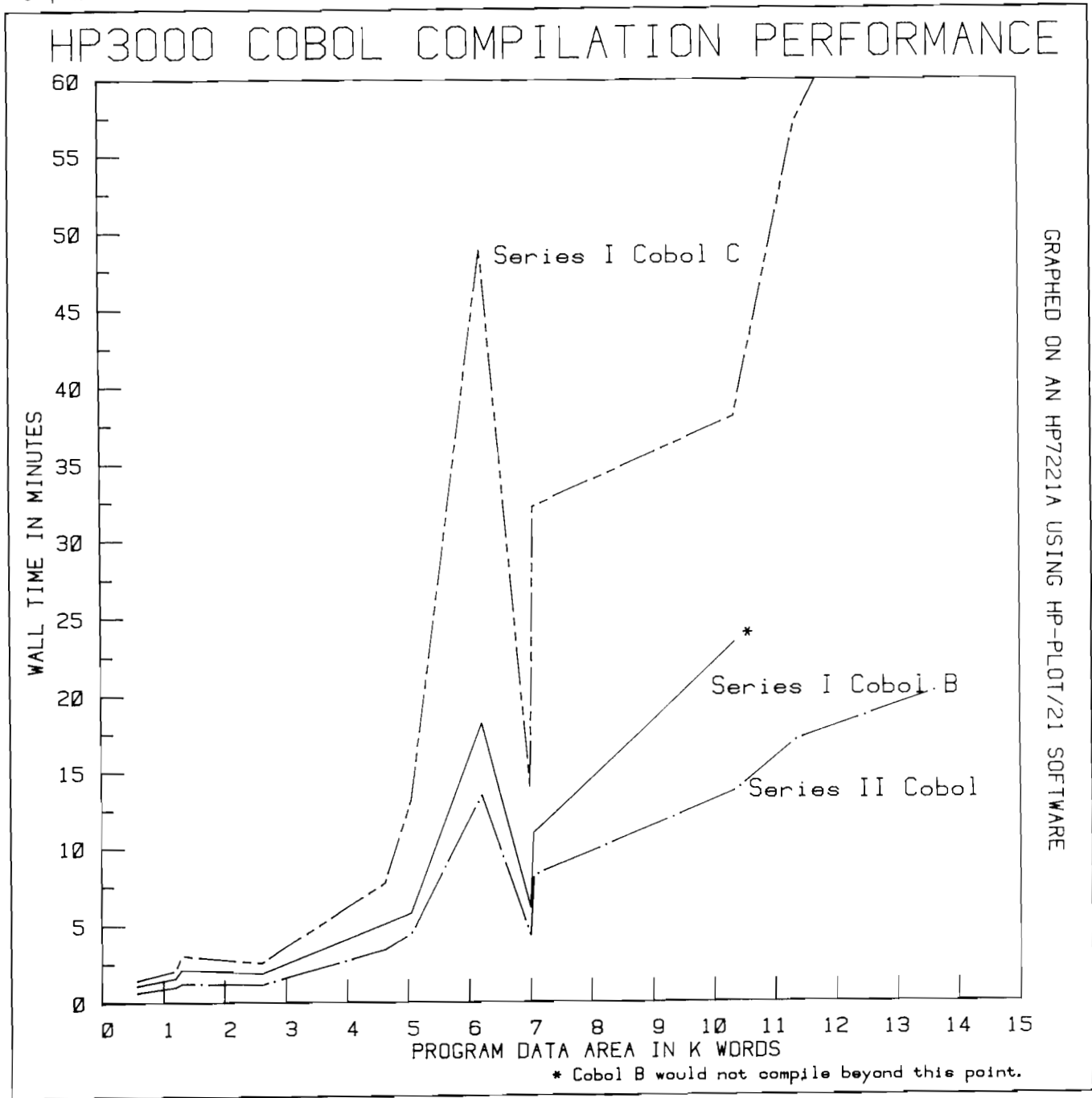
The COBOL C Compiler should not be used on the Series I unless there is no other choice. The COBOL B compiler on the Series I is effective up to about 2000 lines or 10K words. The spike created at 6K words was actually a 2300 line

program creating the increase in compilation time. Therefore, if program size was limited to that, the \$35,000 savings with the Series I is significant.

The additional consideration to the customer would be in the existing programs. If they are large but stable and do not require a lot of maintenance, then the new programs could be developed to facilitate the Series I. This happens to fit very nicely into the concept of structured programming.

Additional Note:

If anyone gets into a benchmark situation with *Harris*, *Datapoint*, *DEC 11/34*, *TI900*, or another low end COBOL processor, I'd sure like to help you. I'd be happy to put together some quantitative data for comparison. Please contact me at *GSD*.



## Sales Aids

### Customer Reference Data Base Ready for Update

By: Sam Boot/GSD

By the time most of you read this, your DM's will be wrestling with a stack of computer listings known as the "HP 3000 Customer Reference Report." For this month, the Report consists only of the 3000's installed in your district — not the entire population of 3000's. Hopefully by now, your DM is also asking you all the latest good stuff about your accounts — how many terminals, what languages, what applications, etc.

A few weeks from now, all DM's will receive an even bigger stack of listings which constitute the worldwide installed base of all 3000's. This is a sales tool to help you be more productive and lend credibility to your sales effort.

Soon you will enjoy three information sources for references — *The Reference Report* in your office, sales development personnel, and dial-up capability to the data base installed on a GSD computer. By using QUERY, you may search the data base yourself for references. Stay tuned for more articles in the *News/letter* and for memos giving you more information about the data base. Have any questions? Give me a call. In the meantime, help improve your own sales tool by sending in those updates on your accounts. This tool is only as good as you make it.

## General News

### Top Salesman Sells Series I's

By: Jon Jacobson/GSD

I had the opportunity recently to interview *Ed Case*, HP's top salesman for the Midwest for FY '77, and gain some insights from the field on "WHY SERIES I?". *Ed Case* has been connected with EDP in a varied capacity for 19 years and has spent the last 16 months with HP as a Sales Rep. Though *Ed's* territory offers some very unique customers, his overall approach to the HP 3000 & Series I offers something I felt should be passed along.

- Q. Why does it make sense to you to sell Series I's?
- A. Let me give you an idea of the customer profile I did when I first started opening up my territory. I found in the Grand Rapids area most of my potential customers

were small manufacturing companies. They were building bicycles or furniture, into food processing and on and on. Most of them employed about 500 people and were doing about \$50 million in business. Most of them did not have a 1/4 million dollars to spend. Then HP 1000 was not a commercial machine and I was having trouble convincing people that BASIC was a commercial language. I was happy to see the Series I introduced. For some reason \$100K is a magic number in Michigan. The Series I offered a commercial machine for under \$100K that would allow people to grow. The important thing is that without Series I, I would not have done as well last year.

- Q. Does that mean that Series I helped you go over quota?
- A. Most definitely! I feel if you approach a customer and only offer Series II you automatically alienate the low-end business. It's like *GM* dealers only offering *Cadillacs*. A lot of people would be impressed with the car, but just keep driving by. If all you've got is the Series II to talk about, people get turned-off and never hear what you have to sell.

The Series I gave me the opportunity to talk to people about the HP 2645, the disc and let them go back and take another look at their budget. Most of the people I've been talking with don't receive a budget, they make it up. The problem is if you only have a \$110K machine to sell in a lot of cases you're already out of the box. I'd like to know how many sales were lost last year because a Series I wasn't presented.

- Q. In general, what are some of your other reactions to the Series I?
- A. The system seems to be very reliable. The local farm bureau has been up for several months now and has yet to fail. It was also interesting to see the number of Series I's being sold through third parties. I mean, with a large Series II or multiple Series II's, I can afford to put in six months to get the order. However, with a Series I, I can only afford to spend about one month. About four calls and that's it. So, selling Series I through third parties makes a lot of sense.

There's another advantage to Series I that should be considered. When I sell one I'm fairly confident that about 18 months out I've got an upgrade order coming in.

- Q. This leads me to my last question. Where do you see Series I in your plans for FY'78?
- A. I have at least four Series I orders that I'm sure of, possibly five. I plan on winning that trophy again next year and the competition is going to be even tougher. Selling Series I is definitely going to help.

Good luck in '78 *Ed*. I hope you have an even better year than the last one. Keep those Series I orders coming in.

# HP GRENOBLE NEWS

## Product News

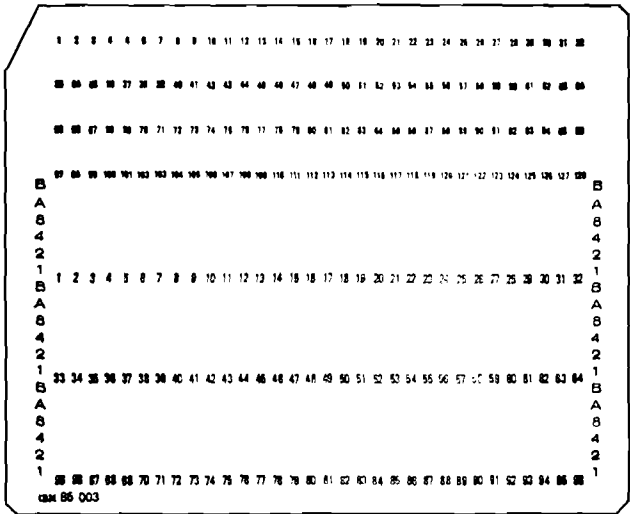
### Those We Cannot Read

By: Marc Nodier/HPG

We are often asked if our OMR's can read 96 column punch cards from IBM.

The answer is: "SORRY, NO".

Our OMR's can read marked cards with up to 96 columns of data. However, as can be seen from the example, the format for the standard 96 column IBM card is completely different from the format of the standard 80 column card as used by our OMR's.



If you are asked this question, make sure the customer really needs to read the standard IBM 96 column cards or if he simply needs to have 96 columns of data on a card.

## Sales Aids

### We Are Always Ready to Close an OEM Sale

By: Peter Stuart/HPG

When we were contacted by a keen salesman from HP Germany who had a prospect for 15 HP 7260A Optical Mark Readers, we were happy to be able to say "yes" to supplying a small special to help close the deal.

The OEM (a well known German supplier of medical systems) uses a Phillips P800 computer system. They use a special core-based operating system and were concerned about core space for a special driver to handle an OMR. The special requested involved reversing the use of a LF and CR, so that their existing software could be used. Just 8 weeks later, we are now shipping the first units.

The application is an old favorite for the OMR: Hospital Pathology Laboratory testing.

Optical Mark Cards will be used to identify patient specimens and analytical tests required.



# CS GROUP NEWS

## CSG News

### Computer Systems for Manufacturing — APICS '77 "Put power where you need it, get information where you use it . . . ." The HP Theme of APICS '77

By: David Sohm/GSD and David Bylund/DSD

Hewlett-Packard attended the annual convention of the American Production and Inventory Control Society (APICS) in Cleveland on November 2-4. General Systems Division and Data Systems Division combined to exhibit a very wide range of hardware and its applications under the main theme of Distributed Processing for Manufacturing. There was no other exhibitor that demonstrated the wide breadth of capabilities as we did ("from process control to inventory control"). We showed our newly announced 1000-3000 link to establish our exhibit not as random product offerings, but as an approach to totally integrated manufacturing control, encompassing everything from machine automation to administrative material control.

All of the "mainframe" vendors also exhibited (NCR, Honeywell, Univac, and of course, IBM). Most all of these were showing software which could be purchased with their hardware to help the customer solve their production and inventory control problems. In addition, there were a large number of third party software houses and service bureaus in attendance. They too were showing P & IC (Production and Inventory Control) software. Nearly all of these packages were developed for IBM 360/370 environments. The most significant observation of this latter group was their move to on-line, small machine based systems. The HP 3000 was the machine many preferred to use. To be specific, COMSERV, MARTIN-MARIETTA DATA SYSTEMS, and ARISTA have all announced plans to offer their package on the HP 3000. In addition, we talked to AMERICAN SOFTWARE and COMPUTER COMPANY about the HP 3000 and they seemed to believe that, sooner or later, they too would move to a small computer based offering.

In total, there were about 20 material control packages being shown. Of these, about 20 to 30% were terminal

based. The exhibits with terminals seemed to draw more interest than those showing batch systems (one comment overheard, "you don't want to look at them, they have stacks of paper everywhere."). The General Systems exhibit consisted of an HP 3000 Model 8 computer with five 2645A terminals and an HP 2631. These terminals were used to demonstrate a version of the materials control software run at GSD. Even though this exhibit was not of a product for sale, there were many customer inquiries about its capabilities. Of the terminal-based systems shown, it was the unbiased opinion of the HP people in attendance that the clear displays and good looking packaging of DTD's 2645A terminals made our manufacturing control exhibit a standout.

Data Systems Division showed two HP 1000's; a Model 21 and a Model 80. The two HP 1000's were linked with DS/1000 and the Model 80 was linked to the HP 3000 via DS/1000-DS/3000. This was the first public demonstration of this powerful capability. The applications and demonstrations featured measurement and control, automatic testing, and source data capture for manufacturing. The now famous 2240A/Tonka Toy lift truck demo was shown on the Model 20 and proved to be a good "conversation" piece. A simple closed-loop test station and a data capture demo were shown using two 3070A's on the Model 80. The data capture demo included a use of the DS/1000-DS/3000 link. Transactions collected and edited on the 3070A/HP 1000 were sent to the HP 3000 and retrieved on the 1000 "virtual" terminal to the 3000.

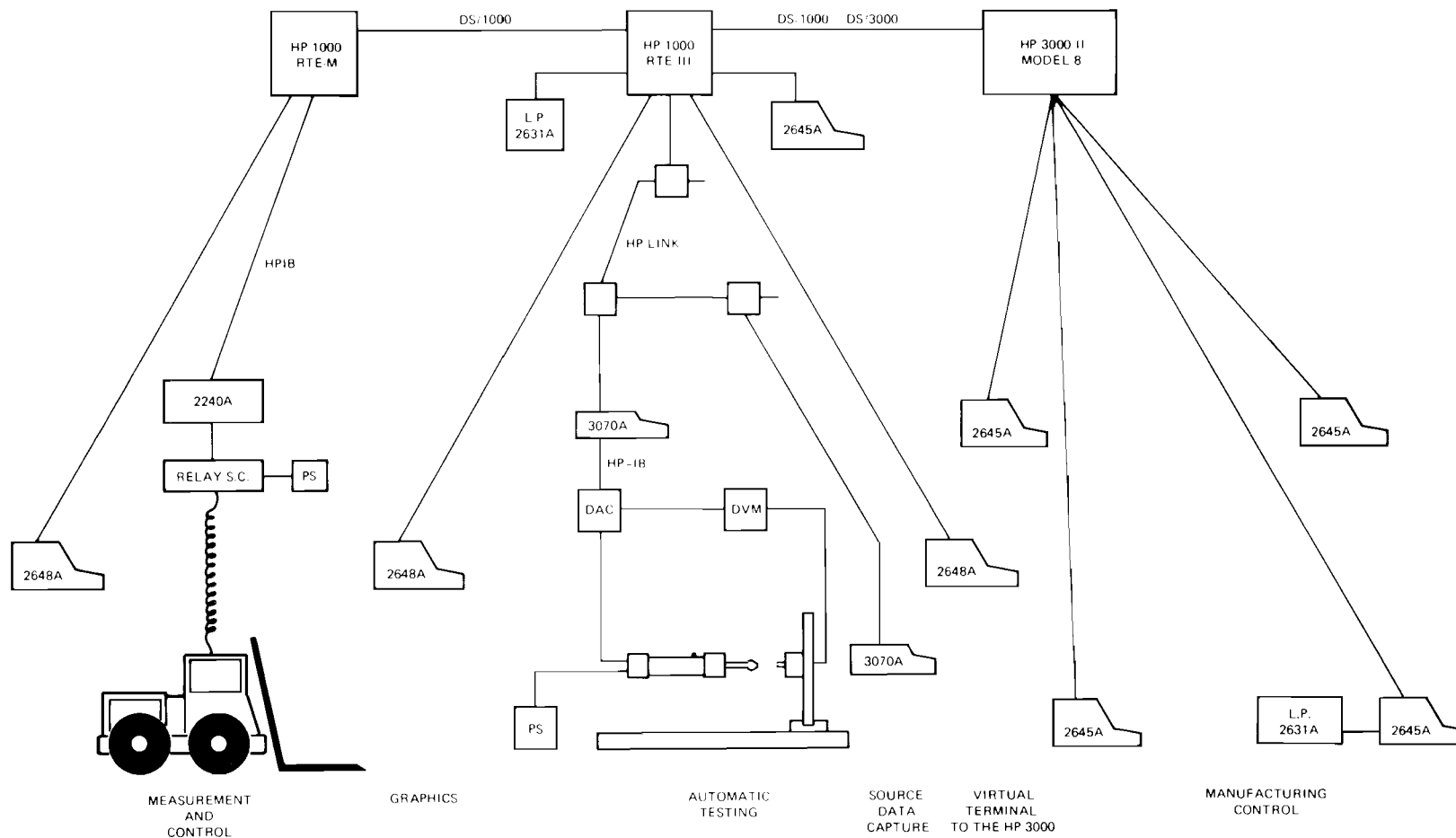
The show was an excellent demonstration of how HP people work together. The exhibit was put together by DSD and GSD, installed by a Cleveland CE, and the booth staffed by factory people from both divisions and the Cleveland, Farmington Hills, and Pittsburgh sales offices. Everything worked well together and we appeared as one company to those visiting our exhibit.

Leads from the show have now been distributed and we're convinced that there is some solid business out there waiting for your follow-up. In addition, the show was one more step in establishing Hewlett-Packard in this important segment of the manufacturing industry.

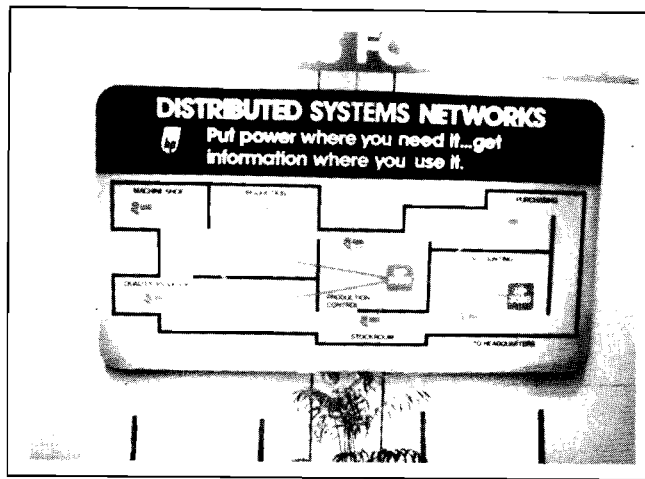
**GOOD SELLING!**

AMERICAN PRODUCTION AND INVENTORY CONTROL SOCIETY  
20TH ANNUAL CONFERENCE NOV 2-4, 1977 CLEVELAND, OHIO

HEWLETT-PACKARD COMPANY EXHIBIT  
BLOCK DIAGRAM



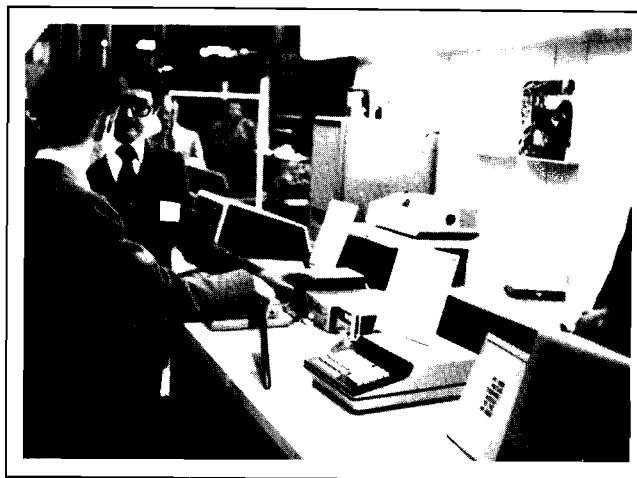
COMPUTER SYSTEMS FOR MANUFACTURING  
Put power where you need it, get information where you use it!



The HP theme for APICS '77.



Steve Goldsworthy/GSD extolls the virtues of the HP 3000 for manufacturing control.



Dave Bylund/DSD demonstrates the power of the HP 1000 for source data capture.



Overall view of the GSD portion of the booth.



Overall view of the DSD portion of the booth.

### "Computer Advances" . . . Advances

By: Linda Scheffer-Scott/CSG

In case you missed them in "Datamation" or "Computerworld", here are the last two "Computer Advances".

The September issue features HP's new 2648A Graphics Terminal on its cover and the HP 2026 inside. The November issue takes an in-depth look at SOS, the HP 2240, the HP 2631/35, and the megabyte computer.



### Don't Get Behind in "Computer Advances"

By: Linda Scheffer-Scott/CSG

Extra copies of "Computer Advances" are as close as your local literature rack. Current issues and those dating back to May, 1977, are now bulk-distributed to every U.S., Canada, and ICON computer sales office. Like other sales literature, large quantities should still be ordered from the corporate literature center.

Organizing a new seminar or direct mail campaign? Just complete this handy coupon for ample copies of the latest "Computer Advances":

MAIL TO: Vic Kirmes  
Literature Distribution Center  
Bldg. 9B, Palo Alto

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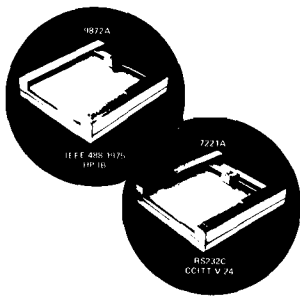
NAME: \_\_\_\_\_ HP SALES OFFICE \_\_\_\_\_

**SAN DIEGO DIVISION**

**Sales Aids**

**Make Overhead Slides on Your 7221A or 9872 Plotter**

By: Tom Tremble/SDD



Ever have a customer ask you about making overhead slides on a plotter? We've tested several materials and have found one that does work well with the standard plotter pens. Suggest that customers interested in making slides try WET MEDIA ACETATE manufactured by Bienfang Paper Company in Metuchen, New Jersey. The material comes in 25 sheet packages (9 x 12 inches), and should be available at local art supply stores. The trace is relatively permanent, although going over each trace twice does improve trace density.

Your customer may also want to consider the mirror image approach when preparing overhead slides. When using the mirror image, the presentation is drawn backwards on the back side of your clear film. Place the slide on the projector with written surface down; the projected image will be righted again. You can then use a marking pen to highlight or note items on the top surface during your presentation. These notes can be erased after the presentation. The Plotter's drawing on the other side of the film will remain intact for the next showing.

**SALES FINANCING DIVISION**

**Tax Oriented Leases**

By: Ron Bannerman/SFD

A special type of lease, known as a *Tax Oriented Lease*, is available through your Regional Sales Finance Manager.

**What is it?**

A Tax Oriented Lease is a special type of full-payout, non-cancellable "True Lease". The lessee will not, by virtue of his

lease payments, build any equity in the equipment to be leased. Rather, the lease contains a "Fair Market Value"

purchase and/or renewal option. The lessor (HP or our designated funding company), as owner, keeps all tax benefits of ownership including the investment tax credit and depreciation. By keeping these benefits, which normally would go to the lessee, the lessee is given a lower lease rate.

**What are the rates?**

The rates will vary according to the customer's credit, the money markets, and available tax benefits to the lessor. This is why we do not publish rates in the *HP Sales Financing Programs* package. But, to give you some idea, below is an example:

Program	Term (in months)	Monthly Payment (% of list)	Interest Rate
Prime Lease Plan	60	2.088	9.25%/yr
Tax Oriented Lease	60	1.887	5.00%/yr

If the rates are so low, why don't all of our customers want Tax Oriented Leases?

Three Reasons:

1. The net cost to the customer if he choses a *non* tax oriented lease will probably be less by virtue of taking the tax benefits himself.
2. Early buyouts are very expensive, since many of the tax benefits used to provide a low rate will be lost to the lessee (e.g., ITC recapture). The lessor will have to cover these costs if he wants to buyout before the end of the lease term.
3. The lease documents themselves are more extensive and detailed. The lessee's legal staff will want to move slowly and carefully before signing such an agreement.

**Who then wants such a lease?**

Generally speaking, customers who know they want a non-cancellable lease, and will not want to buyout early. But most of all, customers who do not want to or cannot utilize the tax benefits themselves. For example, oil companies generally have more tax credits and depreciation/depletion allowances than they can use. Also, banks, which pay very little by way of taxes, cannot use the tax benefits themselves.

**Summary**

- HP Sales Financing can meet the particular financing requirements of most of your customers.
- Tax Oriented Leases are available through your Regional Sales Finance Manager.

Questions? CALL HIM TODAY!!

**HP Computer Museum**  
**[www.hpmuseum.net](http://www.hpmuseum.net)**

**For research and education purposes only.**

# „Verteilte Konfusion“?

*Es gibt fast ebensoviele Methoden der ‚Verteilten Computer-Leistung‘ wie Hersteller. Hewlett-Packard hilft Ihnen, den Schleier zu lüften, weil allein Ihre Anforderungen die richtige Lösung bestimmen.*

Wenn Sie schon eine größere EDV-Anlage besitzen, wäre Ihnen mit einem ‚Verteilten System‘ wenig geholfen – Ihre jetzige Anlage würde zur Fehlinvestition werden oder in wenigen Jahren veraltet sein.

Das Hewlett-Packard Konzept kann Computerleistung an die Stellen verteilen, wo die Arbeit tatsächlich anfällt. Unsere Systeme helfen Ihnen, Ihren Computer optimal zu nutzen. Sie können Aufgaben, die bisher manuell erledigt wurden, mit dem Computer durchführen. Trotzdem haben Sie durch die Verbindung mit dem Zentralrechner eine zentrale Kontrolle. Ein weiterer Vorzug unserer Systeme: Sie sind flexibel und können späteren Anforderungen leicht angepaßt werden.

Mit der HP 3000 bieten wir Ihnen den idealen Abteilungs-Computer mit universeller Leistungsfähigkeit. Er läßt sich für einen breiten Aufgabenbereich – Auftragsabwicklung, Bestandskontrolle, Buchhaltung, Materialwesen etc. – einsetzen. Das heißt, die Effizienz Ihres Verkaufsbüros, Ihres Auslieferungslagers, Ihrer Produktion nimmt erheblich zu. Gleichzeitig haben Sie ein optimales Daten-Eingabesystem, das fehlerhafte Eingaben reduziert und damit Kosten spart. Und das System kann jederzeit erweitert werden, innerhalb

der Abteilung oder zu einem Verbundsystem.

### Wir stellen Ihnen ein komplettes Computer-Netzwerk zur Verfügung.

Durch unsere neue Software wird eine Serie von HP 3000 zu einem sehr einfach zu bedienenden Netz-System. Von jedem Terminal aus können Sie auf alle Programme, Dateien und Daten aller angeschlossenen HP 3000 reflektieren – Sie müssen nur den Computer rufen, mit dem Sie arbeiten wollen und haben sofort online-Zugriff.

Genauso einfach lassen sich Programme und Dateien auf eine andere HP 3000 transferieren. Dabei sind lokale und Fern-Verarbeitung gleichzeitig möglich.

### Ein kleiner Computer für große Aufgaben.

Über ein Terminal können Sie von der HP 3000 Informationen abfragen, während gleichzeitig Stapelverarbeitung läuft.

Sechs ‚große‘ Computersprachen lassen sich verwenden; Sie können große Programme ablaufen lassen und dabei schnell und kostengünstig Software erstellen (das ist ein entscheidender Vorteil, wenn Sie an die ständig steigenden Programmierkosten denken).

Unsere System-Software ist so hoch entwickelt, daß sie auch in kommenden Jahren das Kernstück unserer Computer sein wird. Ihre Programme können Sie also kontinuierlich auf- und ausbauen, ohne daß alte Programme nutzlos werden. Durch diese eingebaute Vielseitigkeit können Sie mit den HP 3000 allen kommenden Trends der ‚verteilten Datenverarbeitung‘ folgen.

### Umwandlung von Zahlen in aussagefähige Informationen.

Ihr Zentral-Computer verfügt über eine Datenbank, um einzelne zusammengehörige Informationen in Dateien zu integrieren. Dies ist selbstverständlich auch an abgelegenen Arbeitsplätzen eine wesentliche Informationsquelle, die sofort und in leicht verständlicher Form zur Verfügung steht.

Das besonders effiziente Datenbank-System der HP 3000 bietet alle Möglichkeiten zur Erstellung von Masken, Titeln, Seiten, Spaltenüberschriften für die Zuordnung nach Kategorien, Zwischensummen, Summen oder Mittelwerten. Über die DS/3000-Software läßt sich jede Datei innerhalb des HP 3000-Netzwerks abrufen.

### Zum guten Kauf gehört mehr als nur ein gutes Produkt.

Wenn Sie die mögliche Konfusion bei der ‚Verteilten Computerleistung‘ ein für allemal lösen wollen, dann fragen Sie Hewlett-Packard. Schicken Sie uns den Coupon. Oder rufen Sie einfach an.

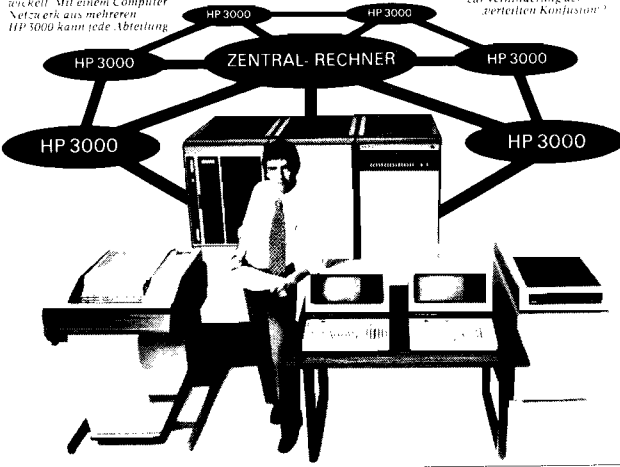
Hewlett-Packard GmbH/Vertrieb,  
Bernier Straße 117,  
6000 Frankfurt/M. 56,  
Telefon (0611) 50041



### HP 3000: Das System, das alles einfacher erscheinen läßt.

*Zum ökonomisch arbeitenden Management brauchen Sie ein Computersystem, das an Ihre bestehende EDV-Anlage paßt, gleichzeitig aber auch die zu automatisierenden täglichen Routinearbeiten Ihrer Abteilung übernimmt. Dafür wurde die HP 3000 entwickelt. Mit einem Computer-Netzwerk aus mehreren HP 3000 kann jede Abteilung*

*die eigenen Aufgaben erledigen, wobei Programme und Datenbanken von der gesamten Organisation gemeinsam verwaltet werden. Gleichzeitig können Sie aus der EDV-Anlage zugreifen, damit Sie die Gesamtübersicht behalten. Gibt es eine bessere Lösung zur Verhinderung der ‚verteilten Konfusion‘?*



An Hewlett-Packard GmbH/Vertrieb  
Bernier Straße 117  
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Senden Sie mir Unterlagen über das  
Computer-System HP 3000.

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COMPUTER  
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NEWSLETTER

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