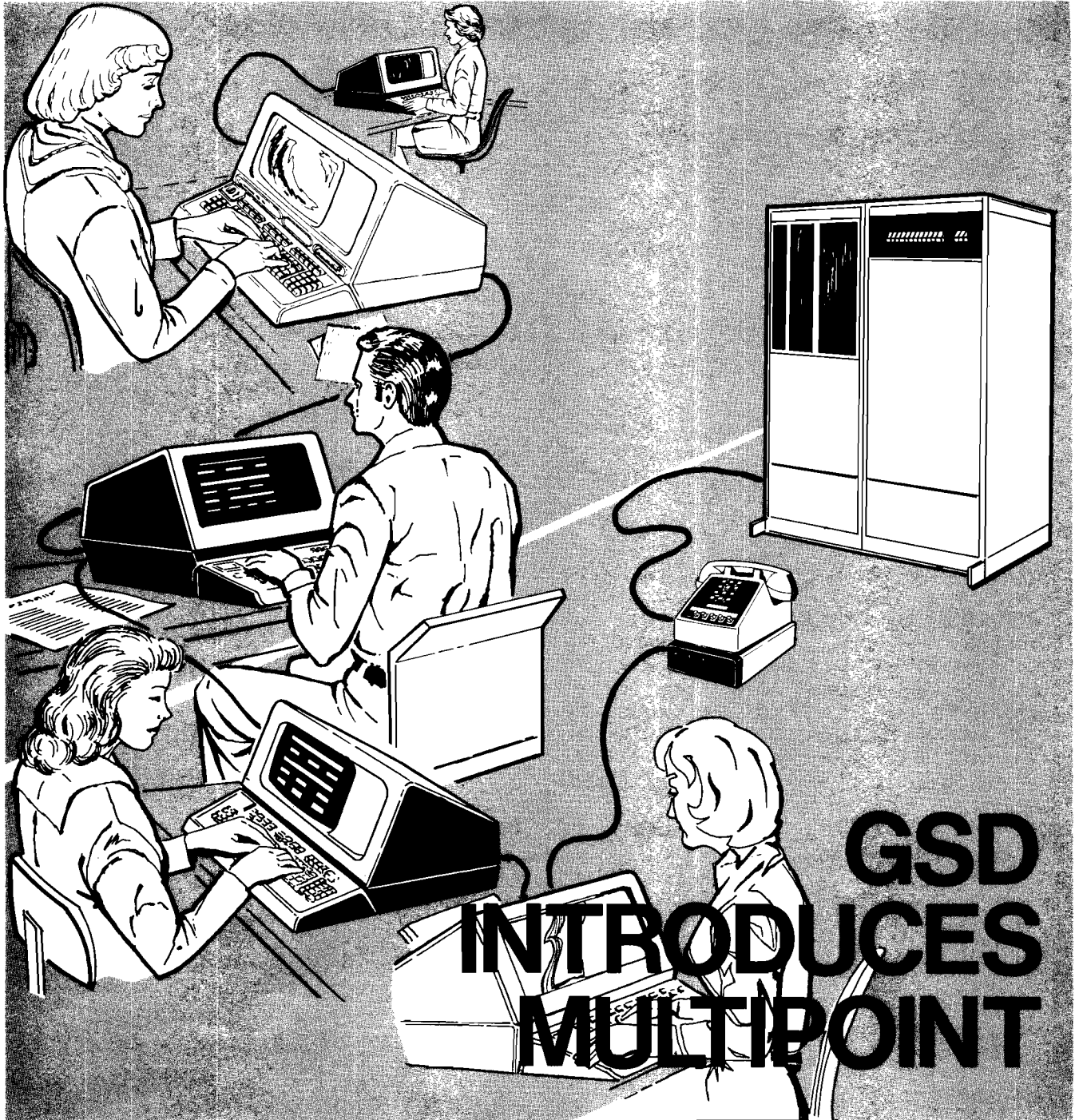


# COMPUTER SYSTEMS NEWSLETTER

*For HP Field Sales Personnel*

HEWLETT  PACKARD

Vol. 3, No. 15  
June 15, 1978



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# DISC MEMORY NEWS

## Product News

### Upgrading 7905's to 7906's

By: Jon Bolt/DMD

Since the recent announcement of the 7906 20 Megabyte Cartridge disc drive, the factory has received increasing inquiries about the possibilities of upgrading existing 7905A drives to 7906 disc drives. Although the drives are architecturally similar, upgrading a 7905A requires excessive labor and parts.

The expense of such an upgrade is substantial and would not be a cost-effective solution to a customer's problem. It turns out the cost of such an upgrade would exceed that of a new 7906! Upgrading involves, among other things:

1. Replacing the fixed platter and read/write heads which are internal to the drive casting — requiring complete disc assembly.
2. Addition of temperature compensation circuitry.
3. Addition of all new PC boards.

As a result, the factory has elected not to offer an upgrade path for 7905A drives.

### 7906 Prefilter Assembly (40019A)

By: Jon Bolt/DMD

Perhaps you've noticed that the 40018A Plenum Assembly, used on the now obsolete 7905, is no longer available. It has been replaced on the 7906 disc drive by the 40019A Prefilter Assembly.

The 40019A provides improved air circulation and cooling by drawing air from outside the drive racking cabinet, and also provides additional filtration as the name "Prefilter" implies.

The 40019A occupies the same rack space (5¼") as the earlier 40018A, so 7906 configuration is still identical. However, customers wishing to order the assembly for a 7905 (previously used 40018A) must now order a 40019A, Option #001. Price is attractive, being less than the old 40018A:

40019A at \$145  
#001 at \$ 50

## Order Processing

### Returns Procedure

By: Pammy (Valentine) Daily/DMD

As DMD grows, we are experiencing returned units arriving at our back door unannounced. We feel it is a good time to introduce our return policy to you. This will hopefully clarify our position in such matters so as to expedite the return process.

### Returns Procedure

All returns must be *authorized* before coming back to the factory. We will not accept any built-to-order products for return. Products must be on the current Corporate Price List (no obsolete products are accepted for return). Consignment units are not to be returned to the factory. It is up to the sales office to alleviate their consignment inventory by selling it to customers or by writing it off their books. In the case where a customer requests a return, we will accept the return *only* if the product is not used, and has not been at the customer site for more than 30 days.

### Reasons for Returns

- Defective units
- Units damaged in shipment
- Factory error in shipment
- Customer request
- Sales Office error
- Salesman error



Should the return be an HP error or defective equipment, the customer will receive full credit for the return with no additional charges. (This procedure excludes returns for repair and return to customer situations.) In the case where a customer requests the return, the customer will be responsible for restocking charges.

1. If the product costs less than \$500.00, the restocking charge will be \$25.00.
2. If the product is over \$500.00, charges are 5% of the list price.

**NOTE:** Additional charges may be incurred if the product is received in bad condition or if all accessories are not returned with the product.

A return will remain open and valid for 60 days from the date the return was authorized and 90 days for International orders. After this time, the return will become invalid and unacceptable for return. It will be up to the field to take the equipment into their consignment inventory.

**Credits**

It is the responsibility of the Sales Office to transmit the correct credit over HEART. Credits may be transmitted at the time approval was given for the return or when the return is on its way back to the factory. Once the equipment is received by DMD, we will issue the credit.

**Returned Equipment**

All equipment is to be returned to the attention of our Shipping Supervisor, *Jim Potts*, at DMD. Please reference the HP sales order number. When calling DMD for authorization for a return, kindly contact *Pammy (Valentine) Daily*, extension 2262. This will help us efficiently handle returned equipment to DMD. Your cooperation would be most helpful in assuring customer satisfaction.

**THANK YOU . . .**

## Division News

### DMD Grows by Leaps & Bounds

By: *Jon Bolt DMD*

Announcing the latest associate to join DMD's stellar Marketing staff — *Kevin Magenis*, from Corvallis, Oregon. *Kevin* brings previous HP experience to DMD, as he previously worked in the R&D labs at Corvallis Division. *Kevin* graduated from Oregon State University with a BSEE.

*Kevin* is a Sales Development Engineer, being involved exclusively with Computer Systems Support of *all* sales regions (we're specializing!).

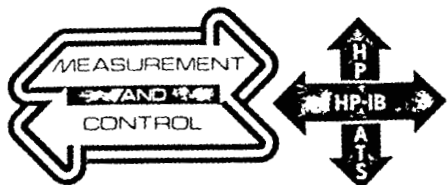
In addition to a superb academic career, *Kevin* is athletically inclined, being a professional freestyle skier, hang gliding instructor, pilot, and gymnast. The flexibility of a gymnast should be a great asset in a Sales Development Environment!

Welcome aboard, *Kevin*!

# DATA SYSTEMS NEWS

## Division News

**Automated Measurement News**  
By: Dick Anderson/DSD



### Automated Measurement News

AUTOMATIC TEST SYSTEMS & MEASUREMENT AND CONTROL PROCESSORS FROM DATA SYSTEMS DIVISION

VOL 1

JUNE 1978

NO 1

It gives me great pleasure to help inaugurate the Measurement and Control Newsletter. This is a publication designed to communicate measurement and control news to both Sales Force 01 and 02. Articles will appear in DSD's section of the CSG Newsletter and separately in a newsletter to be distributed to Sales Force 01 and the Instrument Divisions.

HP is unique among all companies because it is an instrument company and a computer company. We make more instrumentation and do a better job of controlling it with computers than any of our competitors. Yet, with all of our successes, we still have not capitalized on the full potential of our computer markets. Until this point in time we have not been organized to sell and support computer-based instrumentation systems on a wide-spread basis. Our transition to team selling this year removes most of these organizational obstacles. When a customer has a need for computers and for instrumentation, the appropriate HP sales representative can call on him, help him solve his problem, and receive appropriate quota and commission credit for doing so.

The real challenge of team selling is not in the technical knowledge of both sides of the product line (although I'm sure you are having a substantial learning experience as you become more familiar with the complementary products and technologies), but in the management of your selling job with your customer. One of the main reasons people buy from Hewlett-Packard has always been the high caliber of our field force. Over the years, we have established with our best customers working relationships that give them confidence in our people and in the company that backs them. They place very high value on a working relationship that enables them to obtain high quality products on time, with a full complement of support.

We at DSD are committed to providing you with a product structure, quality, and appeal which is easy to sell in a team situation, and we are continually looking to you for suggestions as to how to improve our posture. You and your management will have to solve the difficult problem of maintaining a solid professional relationship with your customers even though you have to draw upon the expertise of more than one person in managing the account. Our best suggestion for the moment is for the person who knows the customer best to take the lead and to ensure that he is the sales representative who knows the customer's fundamental needs, his internal situation, and the timing of his purchase. You have shown in the past few years that individually you can do an exceptional job of this. Today's challenge is to perform even better as a team.

Good luck and good selling

Dick Anderson/DSD General Manager

## DSD Applications Group Update

By: Jim Eckford/DSD

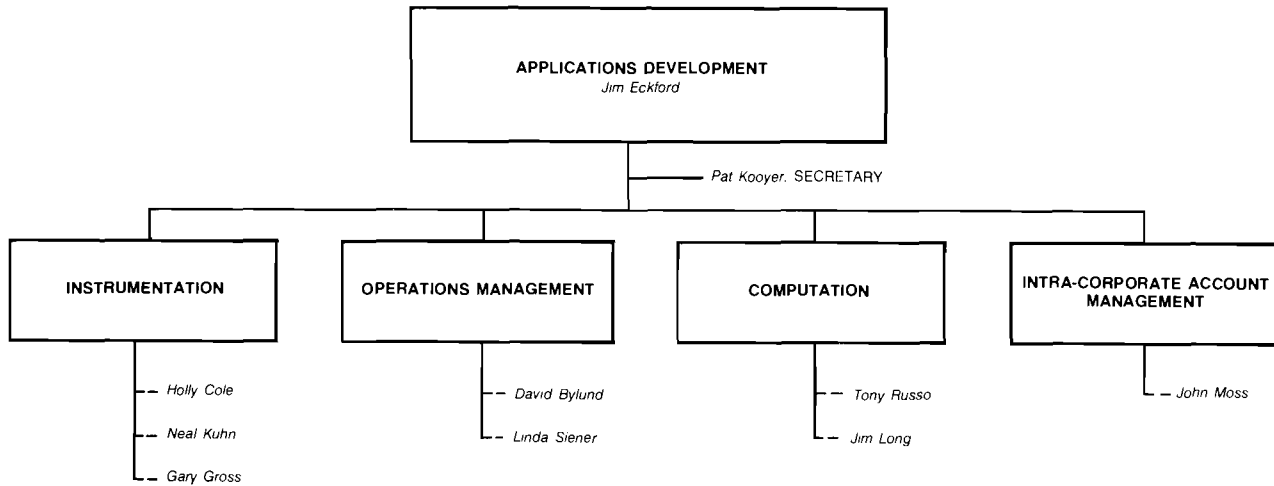
Since much of the field force is relatively new, we thought we would acquaint you with what the Applications Development Group is and what we do. As time passes, even you old timers are bound to get behind on our activities.

Contrary to what the name implies, the main thrust of our charter is not the writing of applications software, even though we do some occasionally for examples.

Our basic objective is to provide applications information for the HP Field Sales Force, their customers, and other HP divisions in an effort to help them relate the HP 1000 and associated products to their applications. We do this through vehicles such as Application Area Data Brochures, Application Notes, Application Briefs, Sales Training Manuals, etc. (See the Data Systems Division Tactical Marketing Plan FY '78 Update for a detailed description of each of these and more.)

Our secondary objective is to try and help represent the HP 1000 user's viewpoint and expectations to the Lab, Product Management, and Technical Support before, during, and after the product design cycle. By exercising a product in a situation as close to the user's environment as possible, we find we can really measure, contribute to, and promote its ultimate effectiveness.

Applications Development Group is divided into the four areas shown below. We have done this in an effort to focus our attentions on the prime applications interests of DSD.



Some of the work currently underway includes the following:

**OPERATIONS MANAGEMENT:** DATACAP Performance Brief,  
DATACAP Applications Brochure,  
Data Collection Application Notes

**COMPUTATION:** Microprogramming Application Note,  
Data Base Management Application Note,  
More Competitive Benchmark Info Relative to the F-Series

**INSTRUMENTATION:** Programming Examples of Specific Instruments on the HP-IB,  
Device Subroutine Application Note,  
Analog Measurements Using the HP 1000,  
Sales Amplifier Outlining Difference Between Calculators and Computers

**INTRA-CORPORATE:** DSD Product Fair - To show other HP Divisions What's Coming for Them to Use in Their  
Products,  
Intra-Divisional Sales Terms and Conditions

We are always very interested in hearing from anyone out there who has any useful information or suggestions about these projects or anything else with an applications flavor.

## Order Processing

### Order Processing for RTE-IV Hardware Upgrade Kits — Domestic U.S.

By: Eric Isacson/DSD

On May 19 Corporate Marketing Services distributed order processing instructions for the 92852 Hardware Upgrade Kits. These instructions are designed to allow *domestic U.S.* customers to be invoiced only once, for \$2000 net in most cases, where they wish to take advantage of our exchange credit offer.

Single invoicing is achieved by withholding all customer invoicing until installation has been completed and the replaced boards have been received at DSD and verified. To do it, make sure that your HEART order transmittal lists the 92852 product, "M62 Exchange Credit", and "No Partials Code 1." Then your customer will receive only one invoice, for \$2000 net.

Between the time we ship the 92852 kit and the time we receive a complete set of returned components, the full list price of the kit will appear in your sales office "unbilled inventory report." Thus, there is incentive to install the kit promptly and to return a complete set of the replaced components to DSD promptly. We will issue the exchange credit within approximately one day of receipt of a complete returned kit.

### Order Processing for RTE-IV Hardware Upgrade Kits — International

By: Eric Isacson/DSD

On May 19 Corporate Marketing Services TELEXed order processing instructions for the 92852 RTE-IV Hardware Upgrade Kits to HPA *international sales companies*. Customs requirements and international business procedures require a somewhat more complex process from the one described above for domestic U.S. orders. The primary effect is that arrangements for single invoicing, if required, must be made in the local international sales office.



Briefly, a shipment destined for an international customer is legally sold first to a separate (HP) sales company at a price adjusted for internal discounts and international business expenses. That company, in turn, sells it to the customer. Upon receipt at DSD of a complete set of replaced components, DSD will issue the exchange credit to the HP international sales company which, in turn, issues it to the customer.

International customs require that duty be paid on the full value of the 92852 kit. Therefore, its purchaser, the HP international sales company, must be invoiced for that amount. Therefore, HEART orders transmitted to DSD from international sales offices must use *separate order sections* with the same order number for the 92852 product and the M62 Exchange Credit. This, in turn, results in two invoices; one at the time DSD ships the 92852 kit; and later a second when a complete set of replaced components is received.

If a single invoice is required in a specific sales situation, arrangements for it must be made by the international sales company or local sales office. This will usually mean giving the international customer credit before the replaced components have been received by DSD. The credit given will normally be an expense until DSD issues the credit. We will issue the exchange credit within approximately one day of receipt of a complete set of replaced boards. Needless to say, it is important for the local sales office to make sure the return contains a complete set of components and that it is shipped promptly.

## Product News

### Special OEM Discount For HP 1000 Demo/Development Systems!

By: Jim Anderson: DSD

The HP Development/Demo System Program is a field-administered program designed to allow high-potential new or existing OEM's or approved software houses in *North America* to purchase an HP 1000 system at a 30% discount for internal use. While there are some important qualifications to be met, the intention of this program is to make Hewlett-Packard an even more attractive alternative for third parties.

In exchange for this system being sold at maximum discount, the third party agrees to use the system for the purpose of program development and customer demonstrations for a minimum of one year from the delivery date of the system. At that time, the customer is free to use the system as he chooses.

When quoting a development system, keep in mind that the intent of the program is to increase our leverage of high potential third parties and not to maximize our sale of

discounted systems! Accordingly, the Regional Sales Manager should be informed of all quotations for these systems. He may also approve changes when appropriate for specific customers.

When orders are transmitted, they should have the correct discount and say "Development/Demo System, may contain some used items" in the special instructions. If used equipment is not available, the factories will ship new equipment and it will always be of the latest configuration and specification.

When quoting the system to a third party, there are a number of rules which apply and have been distributed in a memo to the field by *Stu Yellen* dated April 20, 1978. Those rules are repeated here along with available HP 1000 configurations.

1. This program applies to the configurations listed below at the discounts listed. Equipment purchased in addition to these basic systems will be at full price less standard OEM discounts the customer might be entitled to. Any deviations must be approved by the Regional Sales Manager.
2. The purchase of the Development/Demo System will not be counted as one of the systems purchased under the purchase agreement.
3. Development/Demo Systems discounts shown include the standard installation and warranty for the product.
4. HP reserves the right to refuse to sell a particular customer a Development/Demo System. The HP Regional Sales Manager must approve each Development/Demo System quoted.
5. A qualified customer may purchase only one Development/Demo System of each type during the life of this program. He may not purchase a system of a type previously ordered under a purchase agreement.
6. The items supplied under this agreement at the maximum discount may consist of used equipment. This equipment shall be of the latest configuration and specification.
7. There will be a quotation issued for each Development/Demo System. The following statement will be typed on the face of the quotation:
 

"The above system is quoted pursuant to HP's Development/Demo System program and is subject to the following restrictions:

  1. Buyer agrees to utilize this system for program development or demonstration purposes for a minimum period of one (1) year from date of delivery.
  2. The asterisked items may be used equipment updated to HP's latest configuration and specifications.
  3. This system shall not be counted under any purchase agreement which Buyer may have with HP."
8. No End-User Third Party guarantees will be used for purchasing Demo/Development Systems.

## HP 1000 Systems

Product Number	Option	Description	Discount
2176A		HP 1000 Model 40 Computer System with 128 Kbytes of memory, RTE-IV Software, 19.6 byte disc in upright cabinet. System console with dual mini cartridge I/O and 115V 60 Hz operation.	30%
		or	
2176B		HP 1000 Model 40 Computer System: Same as 2176A except in a disk configuration.	30%
		or	
2177A		HP 1000 Model 45 Computer System: Same as 2176A except with High Performance Memory.	30%
		or	
2177B		HP 1000 Model 45 Computer System: Same as 2176B except with High Performance Memory.	30%
	<i>System Options</i>		
	002	Additional upright cabinet bay with space for magnetic tape unit and an additional disc drive (2176A, 2177A).	30%
	002	19.6 Mbyte disc in upright cabinet with space for magnetic tape unit instead of disc in mini-rack (2176B, 2177B).	30%
	008	2648A Graphics Terminal instead of 2645A display station (2176A, 2176B).	30%
	014	Delete Memory from Base System.	30%
	015	230V Operation.	30%
	033	Substitute 7920 Disc for 7906 Disc.	30%
	<i>Memory Packages</i>		
12786B-D		Standard Performance Memory Package.	30%
12787A-D		Standard Performance Fault Control Memory Package.	30%
12788B-D		High Performance Memory Package.	30%
12789A-D		High Performance Fault Control Memory Package.	30%
	<i>Additional Software (must specify Option 020)</i>		
92063A and Option 020		IMAGE 1000 Date Base Management System on Mini Cartridges	30%
92101A and Option 020		BASIC 1000 on Mini Cartridges.	30%
92061A and Option 020		RTE Microprogramming Package on Mini Cartridges (will require 13197A WCS for microprog testing).	30%
92840A and Option 020		Graphics 1000.	30%

## RTE Performance Tests

By: Jim Long/DSD

The Data Systems Lab has done some good performance tests on the RTE operating system recently. Most of the information has been published as an HP 1000 Systems Engineering Note (SEN-101) dated 4/18/78. Below are excerpts and conclusions from these tests which should help you develop a better feel for the RTE's performance characteristics.

The following tests were done using a 21MX-E CPU, 7905 disc and high performance memory. (RTE-III is not represented because IV has replaced it.)

### PROGRAM SCHEDULING (All times in milliseconds)

MR = Memory Resident Program      LB = Large Background Program  
 RT = Real Time Program            EMA = Extended Memory Area Program  
 BG = Background Program           INT = External Interrupt

		<u>RTE-II</u>	<u>RTE-IV</u>
TIME TO SCHEDULE	MR FROM INT	1.083	1.655
TIME TO SCHEDULE	MR FROM MR	1.593	2.216
TIME TO SCHEDULE	MR FROM BG	1.730	2.416
TIME TO SCHEDULE	RT FROM BG	1.752	3.078
TIME TO SCHEDULE	BG FROM BG	(166.72)*	3.114
TIME TO SCHEDULE	LB FROM BG		3.101
TIME TO SCHEDULE	EMA FROM BG		3.304

\* Requires Swapping

### TIME BASE GENERATOR OVERHEAD

This is amount of system overhead involved with processing the TBG interrupts. It was calculated with 0 programs in the time list and 20 EQT's generated in the system.

RTE-II = 2.26%      RTE-IV = 2.95%

### TRACK ALLOCATION

This is time required to allocate disc tracks (T) from the system track pool.

RTE-II =  $(3.74 + .02 \times \# \text{ Tracks}) \text{ mS}$       RTE-IV =  $(4.03 + .02 \times \# \text{ Tracks}) \text{ mS}$

### I/O THROUGHPUT      UB = UNBUFFERED      B = BUFFERED

Passing 500 words at a time; all numbers are words/sec

	<u>RTE-II</u>		<u>RTE-IV</u>	
	UB	B	UB	B
STANDARD DRIVER	5,210	4,964	3,554	3,581
DMA	220,264	74,738	158,227	112,612
PRIVILEGED DRIVER	16,672	12,496	6,251	12,518

FMGR COMMANDS (All times in milliseconds)

	<u>RTE-II</u>	<u>RTE-IV</u>
PURGE a file	278.1	390.8
OPEN a file	132.0	150.0
CLOSE a file	18.6	18.5
CREATE* a file	455.4	456.2
READ 1 record from a type 1 file	17.05	17.00
WRITE 1 record on a type 1 file	17.15	17.10
READ 1 record from a type 3 file	17.30	17.35
WRITE 1 record on a type 3 file	17.40	17.40

TYPE 1 FILE = Fixed length 128-word record  
 TYPE 3 FILE = Variable-length record

For all READ's & WRITE's plus CREATE the CPU can be doing other things during the respective time periods.

\* Depends on # of files already on disc cartridge; 200 in this case.



MEMORY ACCESS TIMES

EMA = TRANSPARENT EMA FROM FORTRAN

NON-EMA = VIA FAST FORTRAN PROCESSOR

FUNCTION	NUMBER OF ARRAY DIMENSIONS							
	STANDARD MEMORY (usec)				HIGH PERFORMANCE MEMORY (usec)			
	0D*	1D	2D	3D	0D	1D	2D	3D
EMA	39	49	59	69	35	43	52	61
NON-EMA	4	7	23	39				

\* ARRAY DIMENSION      EXAMPLE FORTRAN VARIABLE

0D -----	A, B, C
1D -----	A(1), B(10), C(80)
2D -----	A(1,1), B(3,2), C(10,9)
3D -----	A(1,1,1), B(3,3,3), C(8,5,6)

Some other performance data is:

The time to load a program once it has been relocated. This is the time to bring the program module off the system area of the disc and into main memory.

PROGRAM SIZE	TIME (Milliseconds)
5K	≈33
10K	≈66
15K	≈100

The time to load a program including the time needed to swap out a program which is currently occupying the needed partition.

PROGRAM SIZE	TIME (Milliseconds)
5K	≈135K
10K	≈200K
15K	≈300K

Some program development times have also been included here. These times are only "ball park" figures as such things like compile times are extremely program dependent, but one can figure compile times for FORTRAN programs of 7-11 seconds per 100 lines of code. Double precision can account for another 20-40% more compile time.

Relocating and linking times attributed to the loader seem to be around 2-3 times the compile time but again could be much less as they are also very program dependent.

RTE-IV is much more powerful than RTE-II, but also has more overhead as a result. The performance differences between RTE-IV and RTE-II are due to this overhead. FORTRAN users also have access to EMA by doing their own data mapping using machine language. Done this way, the individual memory access times become equal to the NON-EMA times listed above. The SE note has more information concerning EMA as well as program, segment and EMA load and swap times. Thus, for complete information, plus descriptions about how the tests were run, please see SE note SEN-101.

## Graphics/1000 is a System-Level Software Package

By: Mike Scott/DSD

The recently introduced GRAPHICS/1000 software family provides a powerful set of software tools for a wide range of graphics applications. The 92840A Graphics Plotting Software is the first member of the GRAPHICS/1000 family. It is included with our HP 1000 Model 45 Computer System (2177A/B) or can be ordered separately for \$500.

The 92840A presently supports the 2648A Graphics Terminal, 7245A Plotter/Printer, and 9872A Graphics Plotter. It was mentioned in the Field Training Manual that the 92840A software does not support all the features of these devices. I'd like to discuss that issue in greater detail here.

The objective of the 92840A software is to provide a system-level set of graphics subroutines that are device and application independent. Each supported graphics device has its own set of features and capabilities. It would be cumbersome and impractical for a system-level graphics software package to support every feature that exists on all graphics devices. We chose to support those features that were important to the majority of the HP 1000 application areas.

The product features not presently supported by the 92840A software are itemized in the 92840A Programming and Operating Manual (92840-90001) and listed below:

<u>2648A Graphics Plotter</u>	<u>7245A Plotter/Printer</u>	<u>9872A Graphics Plotter</u>
Autoplot	Beep	Pen Velocity
Hardware Zoom & Pan	← User Defined Characters →	
Rubber-Band Line	← Alternate Character Sets →	
Rectangular Area Shading	← Symbol Mode →	
Area Pattern Definition	← Separately Defined X & Y Axes →	

Autoplot, hardware zoom and pan, and rubber-band line are 2648A features that are accessible directly from the terminal without the need of system support. The other features listed above can be accessed at the system level by using an RTE Exec call with the device specific command (HPGL command for the 7245A/9872A and ESC\* for the 2648A). The disadvantage of using Exec calls for this is that the 92840A software is bypassed so that programming errors cannot be corrected or flagged. The user has the responsibility of assuring that the device is returned to its original status after using an Exec call.

The 92840A software contains device independent plotting subroutines (MOVE, DRAW, etc.) that communicate to the device subroutines (one for each supported graphics device) through a software module that separates the two levels. This separation is the key behind device independence. Each device subroutine is written such that the maximum level of each device's capabilities are accessible to the user.

Device independence is implemented so that the user should be able to obtain high quality plots on all the devices. The capabilities that are designed into each device vary so that they may not respond to a 92840A graphic subroutine call in exactly the same way. An example of this is how each device responds to the CSIZE subroutine for specifying the character height, width/height ratio, and the slant for graphics text. The 2648A has eight defined character sizes whereas the 7245A and 9872A offer a continuous range of character sizes. This device dependent information is also contained in the manual.

**ATEMS — An Army Test Concept***By: Andy Mills/DSD*

You may be receiving a phone call from one of your military prime contractor type customers.

If they utter some mystical words such as ATEMS or MATE or 9580 — smile, you will be doing some business with them.

ATEMS (Automatic Test Equipment Missile Systems) is a concept for automatic test systems being adopted by the Army to support future missile systems.

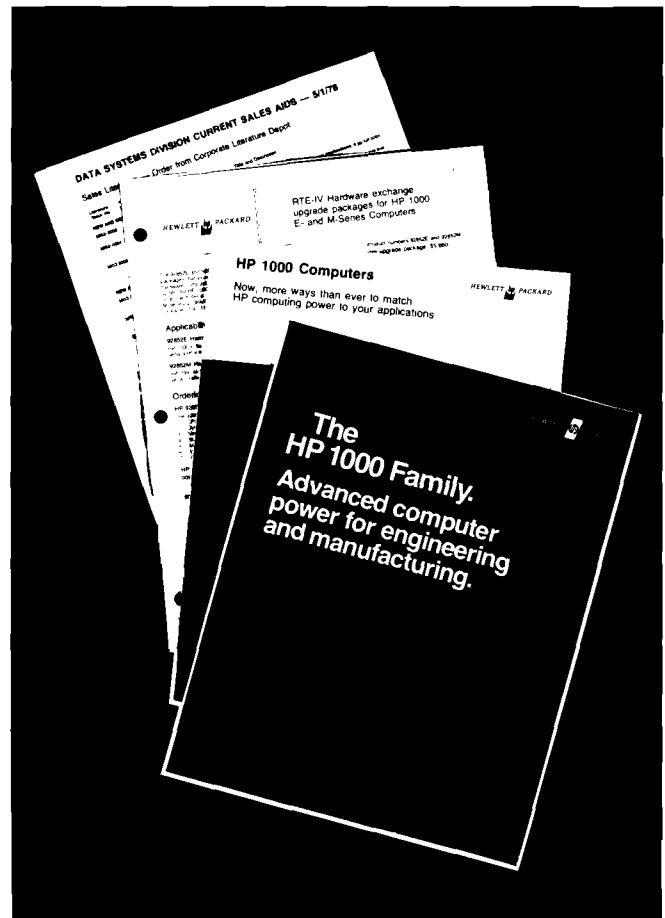
It is made up of a core consisting of an HP 1000; 3455 DVM; 5328 Counter; two 6002 PS; 8165 or 3325 Source; 9411 Switch Controller and 9412 Modular Switch. To this standard core additional instrumentation can be added for specific test problems. ATLAS will be the test language.

If you receive one of those calls, call *Andy Mills* x2177. I will be glad to fill you in on the details.

**IMAGE/1000 Is Not Callable from Basic In an RTE-II System***By: Mike Scott/DSD*

There is insufficient memory to configure BASIC/1000 (92101A), IMAGE/1000 (92063A), the BASIC/IMAGE interface (included with IMAGE), and a typical mixture of drivers into an RTE-II based system (2170A, 2171A, 2172A). BASIC and IMAGE can be used independently in an RTE-II System, but IMAGE calls cannot be made with BASIC since the BASIC/IMAGE interface would be required. Customers that must have IMAGE, BASIC, RTE-II, and the BASIC/IMAGE interface in a system can configure their own system if they are willing to have a minimal set of drivers and very little program space.

We will update our sales literature and product documentation to reflect this incompatibility. You should contact any customers that have on order or are thinking of buying an RTE-II based system with BASIC, IMAGE, and the BASIC/IMAGE interface. The customer should either use RTE-IV (available 8/1) or be alerted to the serious limitations with using both IMAGE and BASIC together in his RTE-II system. Orders that include RTE-II, IMAGE, and BASIC will be shipped without the BASIC/IMAGE interface generated into the system.

**Sales Aids****New Literature Arrivals***By: Tom Freed/DSD*

Since receipt of the NPT Tour literature, you should find the following new DSD sales literature pieces at your office:

- HP 1000 Family Brochure — 40 pp full color (5953-3005)
- HP 1000 Computer Flyer — 6 pp full color (5953-3006)
- Data Systems Division Current Sales Aids — 4 pp (Gold Stock) dated 5/1/78
- HP 1000 Computer Systems Configuration and Site Preparation Guide — Effective June 1, 1978 (5953-0898)
- RTE-IV Exchange Upgrade Package Data Sheet (5953-0899)

DSD will continue to publish the Current Sales Aids list in the *CS Newsletter*.

**GOOD SELLING!**

## E-Series Engineering & Reference Documentation Package

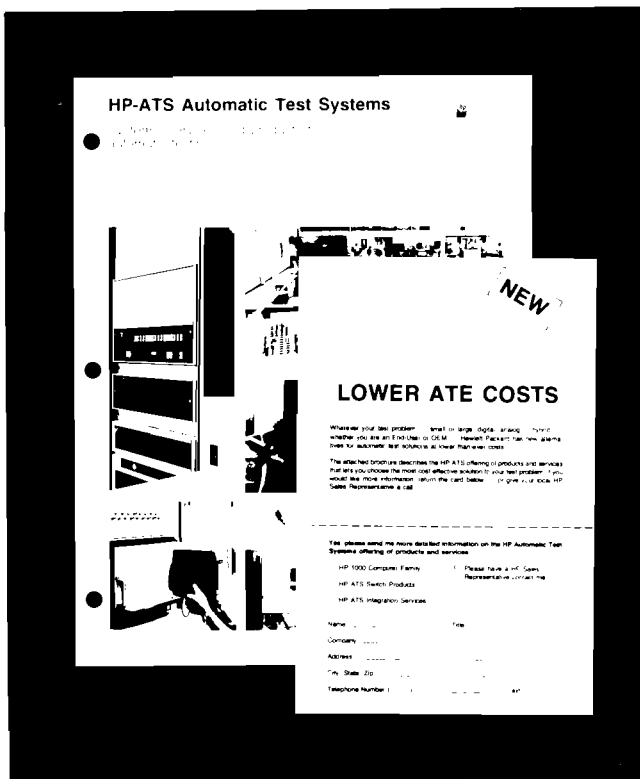
By: Frank Coughlin/DSD

The Engineering and Reference Documentation (ERD) Package for the HP 1000 E-Series Computers is now available. This comprehensive package contains schematics, parts lists, and theories of operation for major assemblies in the computer. It is an invaluable document for troubleshooting, interface design, and other activities that require an in-depth knowledge of the E-Series computer's operation.

The ERD (formerly known as the Engineering Support Package or ESP) is available on a HEART order through CPC. For customers the list price is \$150. For internal use the transfer cost is \$35, and the TAC HEART order should be coded I2 with an override to Division 22 (DSD). It is recommended that each field office maintain at least one documentation package for use by all personnel.

## HP-ATS Direct Mail Campaign

By: George Low/DSD



We have sent the HP-ATS brochure (Literature No. 5952-8545) describing our systems, switch products and integration services for automatic testing to the attendees of the last Circuits Manufacturing ATE Seminar & Exhibit (Jan '78 in Los Angeles, Ca.) and IEEE AUTOTESTCON '77 (Nov '77 in Massachusetts). An inquiry reply card was included with each brochure. These ATE prospects are some 1300 in number and some of them (we hope) may be calling you directly. For your information, the literature we will be sending in response is:

Literature No.	Title
5953-3005	The HP 1000 Computer Family brochure
5952-8524	HP 9415A Digital Test Unit data sheet
5952-8525	HP 9411A Controller data sheet
5952-8526	HP 9212A Modular Switch data sheet
5952-8527	HP 9413A VHF Switch data sheet
5952-8528	HP 9414A Matrix Switch data sheet
5952-8530	Switch Products Configuration Guide
5952-8531	HP-ATS Integration Services data sheet

As we receive responses from this direct mail effort, we will forward their names to you. Use the HP-ATS Integration Services Configuration Guide, Literature No. 5952-8532 to help customers configure their ATS requirements. Sell HP-ATS systems, switch products, and services!

## If the Kit Fits, Buy It!

By: Mike Cohn/DSD

Do you have a large, sophisticated OEM or End User who desires to do his own servicing? If so, the pain and confusion over what parts to stock may have come to an end for you and your customer. Special Engineering has created a product that is virtually the same as the service kit the Customer Engineers use at your customer's site. These kits are a special, therefore, they must be quoted through your friendly Sales Development Engineer and are not subject to Purchase Agreement discounts.

These kits, as shown below, are ordered as 93751A at \$775.00 plus the appropriate option and price. (Please note: Prices are subject to change without notice.)

Option 001	MX Computer: box hardware (non electrical)	\$ 720.00
002	MX Computer: CPU board, memory controller, memory protect	\$3340.00
003	MX Computer: firmware, FFPIII/DMS, FFPI	\$ 565.00
004	DMS: memory expansion module	\$ 575.00
005	Power supply for 2105A	\$2700.00
006	Power supply for 2108A/2109A, Battery Control I, II, output	\$3170.00
007	Power supply for 2112A/2113A, Battery inverter	\$3065.00
008	MXE Computer: CPU and hardware (similar to option 1, 2, 3 for MX computer)	\$4435.00
009	"B" Version power supply	\$ 845.00
010	High speed memory	\$1775.00
011	12979B I/O Extender, cross over, I/O buffer, extend control	\$ 875.00

The above list is provided as a guide for the contents of each service kit. A detailed list can be provided as needed for each option.

Delivery is 12-14 weeks after receipt of order.

## Play It Again, Sam

By: Jane Seligson/DSD

One of the most frequently heard lines from the field is, —what data sheet? Those of us involved in the distribution of DSD Customer Training Data Sheets, sometimes suspect that a highly volatile ink with a two hour shelf life was used. But it wasn't. And we don't. And they DO — exist! Every Data Systems Training Course on the Corporate Price List has a corresponding data sheet. They are easy to obtain, cost you nothing and are very informative. Each sheet describes course length, price content, lab time, objectives and prerequisites. This same information is also found in the "HP 1000 Computers and Systems Active Software Data Book" (5953-0861).

The following is a list of current Data Systems Training Course Data Sheets and the number to use when ordering them:

### Data Systems Data Sheets

5953-3032	21XX Series Assembler	22950A
-3033	TODS II/III	92722A
-3034	Spectrum Analyzer	92720A
-3035	HP-IB in Minicomputer Environment	22980B
-3036	DS-IB PRIME	22969A
-3037	IMAGE DBMS	22977A
-3038	E-Series Microprogramming	22983A
-3039	M-Series Microprogramming	22960A
-3040	DS/1000 User's Course	22987A
-3041	Theory of Operation DS 1000-HP 3000	22962B
-3042	ATS Test Programming	92780A
-3043	RTE Driver Writing	22990A
-3044	RTE-II/III Operating System	22965B
-3045	RTE-M Operating System	22985A
-3046	Theory of Operation of DS/1000	22961B
-3047	HP 1000 Assembler Programming	22952B
-3048	RTE-II/III to RTE-IV Upgrade Course	no DSD course #

There is also a Computer Systems Group Customer Training Schedule (5953-0841) which lists all HP 1000 and HP 3000 courses taught in the various U.S. training centers. It is released quarterly. The new schedule will be available in mid-June.

All publications and data sheets mentioned in this article can be ordered on a SIO form from the Hewlett-Packard Literature Depot (Bldg. 9B), 1820 Embarcadero, Palo Alto, Calif. 94306.

## Commercial ATS

By: David S. Kline/DSD

An intensive effort is being made at DSD to expand HP/ATS sales into "non/traditional" ATS customers. The new pricing on ATS results in substantial savings over previous 9500 prices which makes us more attractive in the commercial marketplace, and allows us to penetrate an area dominated by GENRAD, Computer Automation and others. We need you to tell us what more we can do to help sell ATS.

Several efforts are planned by DSD shortly to assist you in this expansion.

First, we intend to have an ATS direct mail campaign during the next few weeks to generate new sales opportunities.

Second, we're visiting several typical prospects to get a feel for the problems you're up against.

Third, we're going to configure several typical systems as examples for you. These will be priced, and a configuration guide will be completed. It should be easier to work from some specific examples than the general concept.

Fourth, we are soliciting your criticism and suggestions. The next time you are talking to your ATS RSE, let us know anything else you think would enable you to sell more ATS.



# DATA TERMINALS NEWS

## Product News

### Big Savings for Customers!

By: Wendi H. Brubaker DTD

GREAT NEWS!! DTD is giving your customers more for their money. The 2645A and 2645S will have lower case included standard starting July 1st.\*

We are just trying to make your job easier. Keep on selling those 2645 terminals!

\*When you order the 13231A Display Enhancement Board the Line Drawing Set ROM (the old option 202) is included at no additional cost.

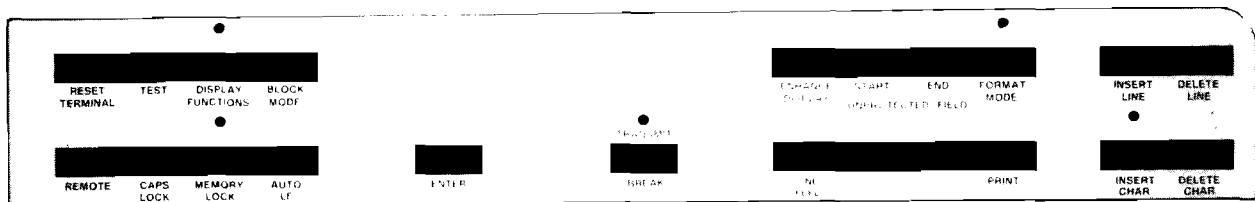
### Keyboard Overlays Demystified

By: Eric Grandjean DTD

Here at long last is our current list of keyboard overlays, what they are, and their part numbers. (By now you have all discovered that these overlays do not show their part number)

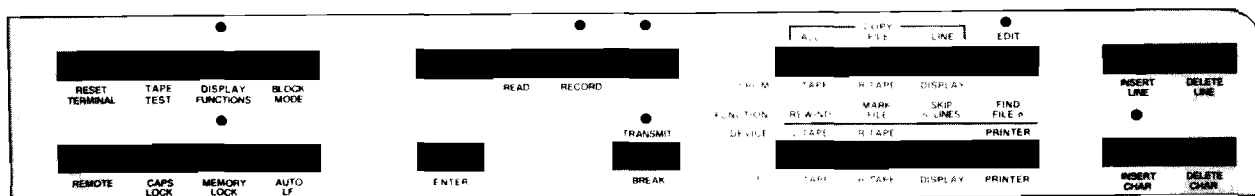
02640-00059

2640B/N/S



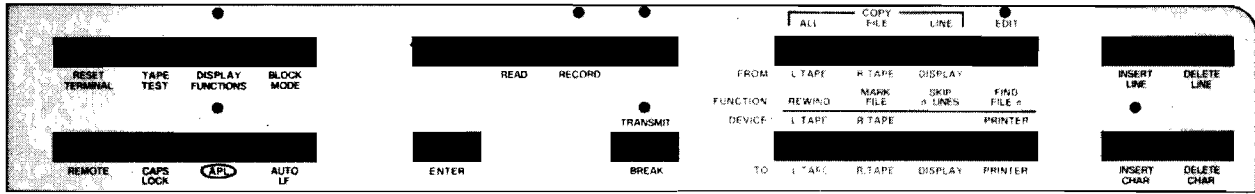
02644-00002

2645A/N/S  
2648A  
2649A Opt 200  
13290A



02641-00002

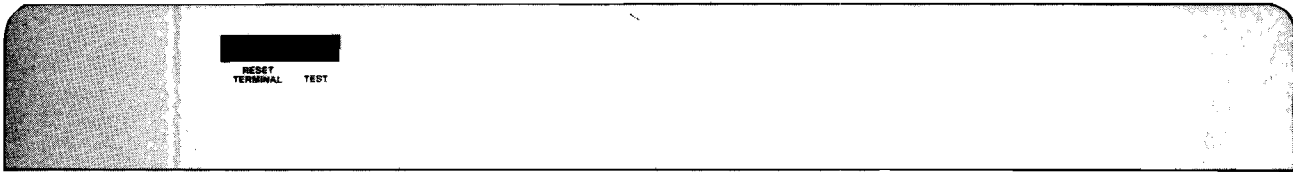
2641A APL



\*Note difference between this version and 02644-00002.

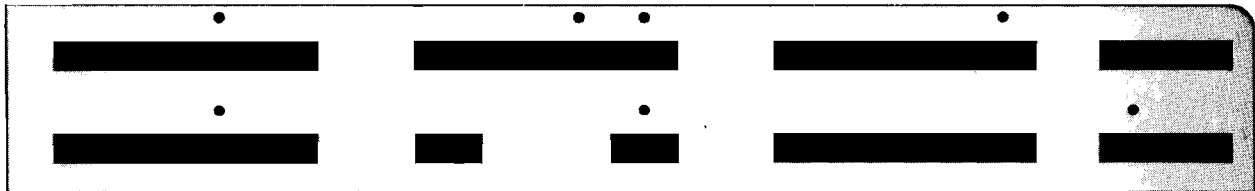
02640-00069

Simplified  
2649A Opt 201  
(Can be punched by user)



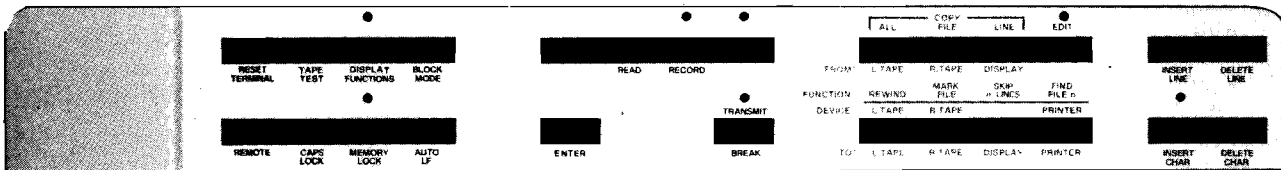
5000-8083

No labels  
2649A Opt 801



02645-00003

Multipoint  
13260 C/D  
(Comm Section covered)



Now you've got it all . . . and we do it all for you!

**GOOD SELLING!**

**The Long And The Short Of It!**

By: Rich Ferguson/DTD



Remember how during New Product Training Tours we preached to you about high-level graphics commands? Remember how we said one command replaced literally hundreds of escape sequences? Well, partner, what you see in the picture is a printout of the HPGL commands generated by the following AGL command in the 2647A Intelligent Graphics Terminal:

LGRID(1. 1. 0. 0. 2, 2)

Now, here's the even more interesting part: If we were to show you the list of escape sequences generated by this one little command, the list you see in the picture would be even longer. So, high-level graphics commands in the 2647 are indeed a force to be reckoned with!

**NOTE:** For a free, autographed copy of the 2647A data sheet, guess who's the man behind the listing! In case of ties, entry with earliest postmark is the winner!

TO: DTD MARKETING

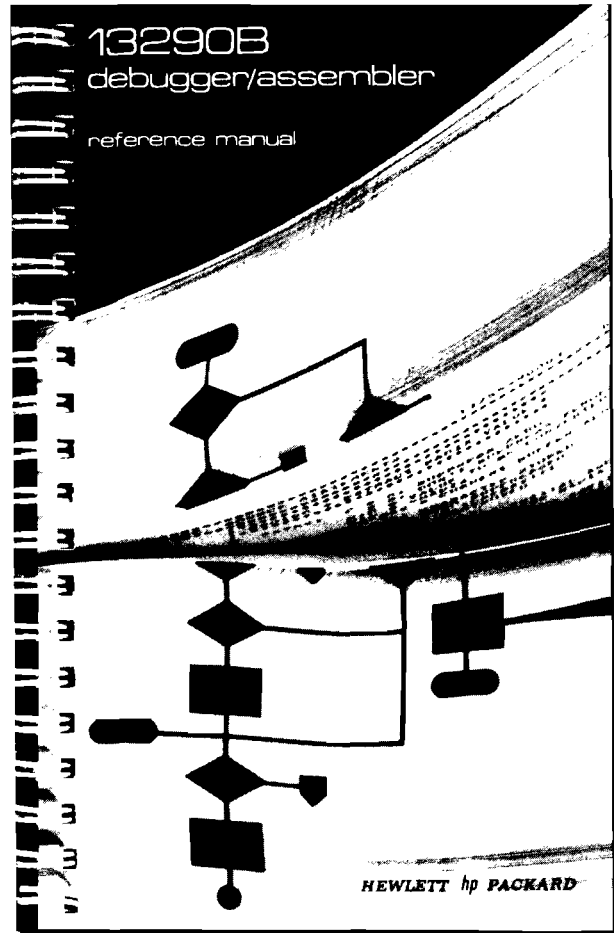
FROM: \_\_\_\_\_  
 (Name)

\_\_\_\_\_ (Office)

The mystery man in the photograph is \_\_\_\_\_

**It's Here! The 13290B Debugger/Assembler Reference Manual**

By: Tim Haney/DTD



For those of you who have been following DTD's OEM program, you're probably familiar with the recent introduction of the 13290B PROGRAM DEVELOPMENT TERMINAL. This is the terminal that allows an OEM to get started in their firmware development with as little as \$6950.00. That's the complete cost of the 13290B which includes all the features of the 2645 with opt 007, 64K of Random Access Memory and the 13290-13303 DEBUG-ASSEMBLER tape. For those of you interested in learning more about the capabilities of the 13290B, we recommend ordering the brand-new, hot-off-the-press, 13290B Reference Manual. The part number to order is 13290-90009 (42). It's easy reading which will help you understand the hardware, software and operating parameters of the development terminal. In fact, order a couple of extra copies, it's the perfect document to help bring in that super 2649 OEM order!

**SELL OEM!**

## Graphics Bonanza

By: Christian Graffi/HPG

We used to have only one way to do graphics and that was by implementing Tektronix Plot-10 package on HP RTE Systems. Now we have an abundance of products that may yield some confusion.

- On the system side HP now offers 92840A Graphics Plotting Software (a set of subroutines callable from FORTRAN IV, BASIC and Assembly Language under the RTE-IV operating system on HP 1000 systems).
- On the terminal side HP now offers an unmatched intelligent graphics terminal, the HP 2647A with multiple automatic plotting, total BASIC language programmability and high level graphics commands (AGL).

Obviously these two products overlap as far as graphics capabilities are concerned and raise some questions such as "Do we have to use HP 2647A along with the new Graphics Plotting Software"? Or, "My customer already has an HP 1000 system or is planning to purchase one: should I recommend that they buy HP 2648A's or HP 2647A's"?

The three following basic configurations are available to you:

1. HP 1000 System with RTE-IV and the Graphics Plotting Software along with HP 2648A's: the traditional approach to graphics.
2. HP 1000 System with RTE-II or RTE-III (no Graphics Plotting Software) along with HP 2647A's: the opportunity for the user to have graphics capabilities right at his desk without any central software.
3. HP 1000 System with RTE-IV and the Graphics Plotting Software along with HP 2647A's: the best of both worlds, central Graphics Plotting Software and tremendous local processing capabilities with the 2647A.

When choosing one of these configurations, keep in mind the following points:

- HP 2648A is still the best smart graphics terminal when connected to a mainframe with Graphics Plotting Software.
- HP 2647A is best suited when communication costs are critical (modem rental, long distance calls, etc . . .) and/or when it is required to relieve the central CPU from some processing load or when more terminals are to be connected without bogging the system down. Besides its local intelligence and processing capabilities, the 2647 is also recommended every time its specific features are required, such as multiplot, shared peripherals and plotter support.

Remember that the HP 2647A is fully compatible with the HP 2648A and therefore fully compatible with the HP 2645A and everywhere a 2645 or 2648 is now being used, a 2647 can be plugged in!

## Sales Aids

### CAT Scanner Output on 2648A

By: Bill Swift/DTD

The "Application of the Month" award goes to THOMAS JEFFERSON UNIVERSITY HOSPITAL for interfacing the 2648A as an output device for their Computerized Tomographical (CAT) Scanner. The CAT Scanner produces an X-ray type image of a patient and transmits the image as a bit stream of 1's and 0's to a DEC 11/45. The CPU matches segments of the image with one of seven area fill patterns ranging from all white to all black. The CPU then transmits the area fill escape sequences to a hardwired 2648A at 4800 baud. The entire process including CPU time requires about two minutes.

The benefit is that now any resident can access a patient file for analysis or discussion and receive a graphic output on the 2648A. For therapy purposes, contours can be drawn around specific areas and transmitted to the DEC 11/45. Under computer control radiation treatment can then be applied to the patient.

Many thanks to *Joe Fasulo*, ESR-King of Prussia, for sharing this application with us.

### The 2648A And A Benson Plotter

By: Jacques Biard/HPG

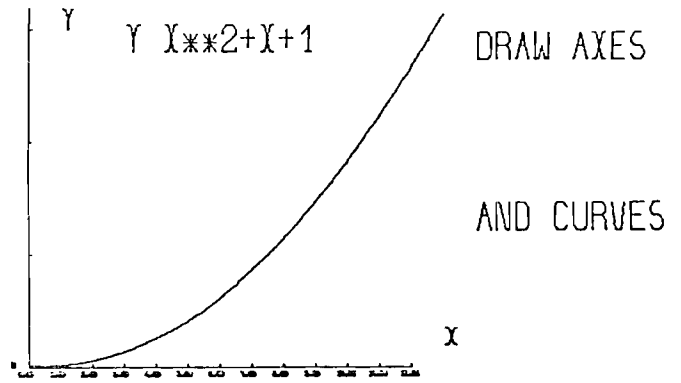
There are at the moment two different means to drive a 2648A on an RTE System:

- The PLOT-10 package from Tektronix, modified by HP; this package should now be replaced with the HP 92840A Graphics Plotting Software which will support the new 9872A, 7245A and 7221A Hard Copy devices.
- For those customers who are already using or have a real need for a Benson Plotter\*, we can offer a graphics software that will also drive the 2648A. This software will run on an RTE-II, III or IV System and some of the routines can easily be modified by the customer to fit his specific needs; for this reason, no support will be available. If you want to see the possibilities of this package, just send me two blank cassettes and you will receive a demo program, all the software and the related documentation. Many thanks to *Yvonick Laleouse* who modified the software to make it work on the 2648A.

\*Very large size, high resolution plotters which do not compete with the HP plotters.

THIS PROGRAM SHOWS YOU THE  
ON-LINE DRAWING

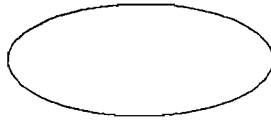
CAPABILITIES OF THE 2648A,  
CONNECTED TO A HP 1000 WITH GRAPHICS SOFTWARE.



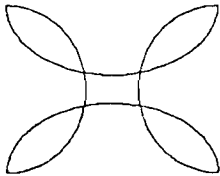
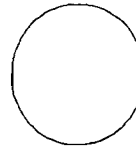
Chains of characters can be drawn using a single call to a routine.

Labelled Linear or Logarithmic axes.

ELLIPSE



CIRCLES

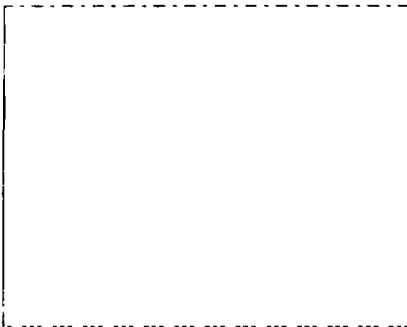


ARCS OF ELLIPSES

ARCS OF CIRCLES



Routines to draw commonly used curves.



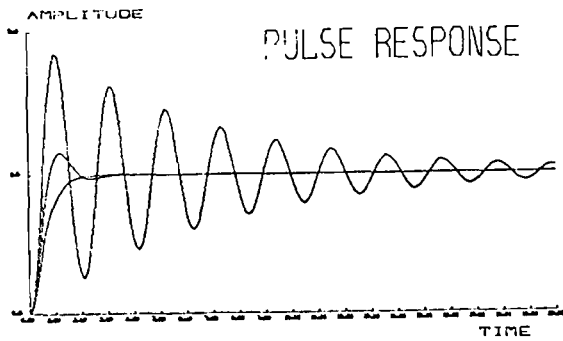
DRAW LINES  
OF DIFFERENT  
COLORS

Colors for the plotter are changed to line types on the 2648A.

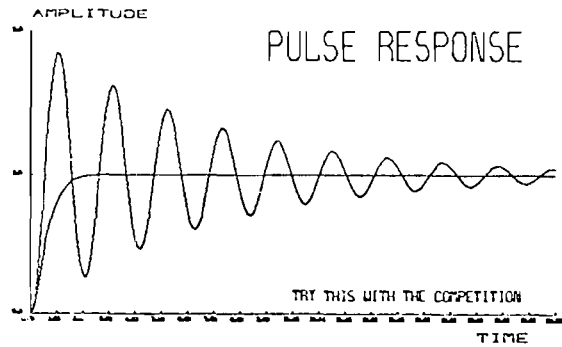
```

DO YOU WANT TO DRAW:-A CIRCLE(CI)
                    -AN ELLIPSE(EL)
                    -EXIT(EX)?CI
ABSCISSA OF CENTRE(0.<X<25.)?7
ORDINATE OF CENTRE(0.<Y<12.)?6
RADIUS OF CIRCLE(R<25.)?5
DO YOU WANT TO DRAW:-A CIRCLE(CI)
                    -AN ELLIPSE(EL)
                    -EXIT(EX)?EL
ABSCISSA OF CENTRE(0.<X<25.)?14
ORDINATE OF CENTRE(0.<Y<12.)?6
MAJOR AXIS(R1<25.)?12
MINOR AXIS(R2<12.)?5
ANGLE MAJOR AXIS-MINOR AXIS(-360.<AN<360.)?30
DO YOU WANT TO DRAW:-A CIRCLE(CI)
                    -AN ELLIPSE(EL)
                    -EXIT(EX)?EX_
    
```

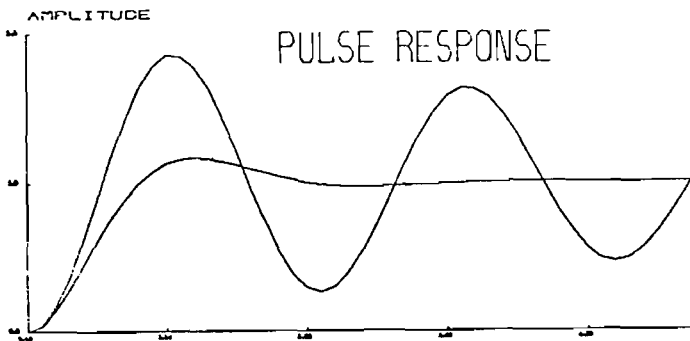
Example of interactive dialogue used to draw circles or ellipses.



Curves can be drawn one after the other just by changing the parameter.



If you do not like one of them just say ERASE.



You may also CHANGE THE SCALE.

```
TASK? DRAW (DR),ERASE (ER),EXIT (EX),CHANGE SCALE (CS) DR
ENTER THE VALUE OF M M=3.05
TASK? DRAW (DR),ERASE (ER),EXIT (EX),CHANGE SCALE (CS) ER
ENTER THE VALUE OF M M=0.5
TASK? DRAW (DR),ERASE (ER),EXIT (EX),CHANGE SCALE (CS) DR
ENTER THE VALUE OF M M=0.99
TASK? DRAW (DR),ERASE (ER),EXIT (EX),CHANGE SCALE (CS) CS
SCALE IN X= 1.00 CM/UNIT
Y= 5.00 CM/UNIT
NEW SCALE IN X= 5
NEW SCALE IN Y= 5
TASK? DRAW (DR),ERASE (ER),EXIT (EX),CHANGE SCALE (CS) DR
ENTER THE VALUE OF M M=0.05
TASK? DRAW (DR),ERASE (ER),EXIT (EX),CHANGE SCALE (CS)
```

Example of the dialogue used to generate the previous drawings.



# GENERAL SYSTEMS NEWS

## Product News

### Manufacturing Systems Goes Public

By: Pete Van Kuran GSD



Most of you in the U.S. and Canada have heard of MFG/3000 over the past few months. MFG/3000 represents GSD's entry into the manufacturing applications business and is a major step in support of our goal to become a major supplier to manufacturing companies. Application products can open new market opportunities for HP and improve your sales productivity with manufacturing accounts.

You probably have wondered why we have been making such a big deal out of MFG/3000, but haven't yet officially announced it to customers. Before promoting the product and our commitment to this new business area, we wanted to be certain that we had successfully tested all of the details necessary to ensure a successful outcome at each MFG/3000 installation. Not only did we want to test the reliability of our software contribution as thoroughly as we do other GSD products, but we also wanted to be sure that the products could actually help customers achieve improvements in productivity and the way they manage their business. We wanted to Beta-test our product documentation, Sales Rep, SE, and customer training courses

prior to announcement to ensure their effectiveness and value. It was also an important goal that a trained and confident local SE support organization be completely in place in the field before accepting volume sales.

We feel the above goals have been achieved with MFG/3000. The products were originally installed last Fall at GSD and two customer test-sites. These installations have ended their test-site status with positive results. The products went on the price list on March 1 of this year, and we began receiving orders in that month. During April, installation began at two more customer sites and shipments to customers continue now regularly. Nearly fifty Sales Rep's have completed a two-week Industry Applications class that covers manufacturing industry selling and MFG 3000 product training. (Technical salespersons cover DATACAP 1000 applications in their second week.) S.E.'s from each area in North America have completed a special five-week Manufacturing Industry Specialist course and are now available locally to provide pre-sales consulting and post-sales support for your customers. By the end of FY 78 we expect to have a total of 24 Manufacturing Industry Specialists in the field. The complete set of product documentation, manuals, and sales literature is in distribution. Customer training schedules are also published. In addition, we have had the opportunity to visit most of the sales offices in North America to discuss our product strategy and local implementation.

With these major milestones achieved, the time has come to publicly announce MFG/3000 in North America. The first phase of this announcement will be on the June NPT tour where you will have another opportunity to discuss the benefits of selling applications solutions to manufacturers. The second step will be the announcement to the current customer base and prospects during the Customer Product Preview sessions held in conjunction with the NPT Tour. The third step is the public announcement itself on June 27, followed by coverage in the major trade, business, and manufacturing press periodicals. The fourth step includes a series of customer seminars and product advertising beginning this summer.

For those of you who want to find out more about MFG/3000, you will find the *Sales Training Manual* is a well-organized document that can accommodate both those who want to spend fifteen minutes reading and those who can afford a

couple of hours. Just consult the descriptive table of contents and select the topics of interest. For specific questions, corner your local SE Industry Specialist (see the list below). He/she is an expert on the product.

N.B. The products are available in North America only.

**Industry Specialists**

- |                               |                              |
|-------------------------------|------------------------------|
| Steve Taber/Santa Clara       | Len Bargent/Toronto          |
| John Scribner/Fullerton       | Marie Gordon/King of Prussia |
| Rod Smith/Airport             | J. G. Moore/Richardson       |
| Carolyn Solum/St. Paul        | Dennis Neeland/High Point    |
| Joann Johnson/Rolling Meadows | Frank Kopish/GSD             |
| Bill Sluka/Cleveland          | Jim Schindler/GSD            |
| Rich D'Angelo/Lexington       |                              |

**Introducing Multi-Point Terminal System/3000**

By: Mike Halaburka/GSD

MTS/3000 gives you another network design tool that few of your competitors have! This is a tremendous sales advantage over other minicomputer companies that have not announced a full hardware/software multi-point product.

MTS/3000 fits best in certain situations rather than having a broad application usage like the Asynchronous Terminal Controller. Therefore, it is a complement to the existing ATC and in no way replaces it. In these special situations, MTS/3000 can be very useful and provide excellent performance. The two generic situations where MTS/3000 best fits are block mode data entry applications:

1. Where virtually error free data transmission is needed, and
2. Where the physical location of terminals, either remote or local, makes it expensive to connect them to the CPU by point-to-point lines.

**A Powerful, Capable Product**

MTS/3000:

1. Will allow users to have up to 32 terminals share a single remote or local line.
2. Operates at speeds up to 9600 bps.
3. Is fully integrated into MPE-III and is compatible with DEL.
4. Provides for automatic error checking and retransmission on remote synchronous communications.

A multi-point network has virtually an unlimited number of configurations. However, a general statement that can be made for MTS/3000 is that most networks consist of two to four drops per line with fewer than eight terminals per drop. Most networks will use 2400 bps or 4800 bps modems and achieve response times on the order of a few seconds. While networks with scores of terminals on a single line are possible, they are realizable only under special circumstances. Such networks are the exception rather than the rule. Consult with your field training manual on MTS/3000 for the details.

**Some Final Points**

The initial release of MTS/3000 *WILL NOT* support speeds below 4800 bps. This will be corrected on the next release of MTS/3000, which is scheduled in the August, 1978 timeframe.

Existing 2640 series multi-point terminals require some ROM changes. If your customer orders the 13260C/D card today, he will receive these ROM's as a part of the multi-point kit. If you have a customer that has purchased the 13260C/C cards prior to June 1, 1978, they will need to have some new ROM's installed for proper operation of MTS/3000. DTD has agreed to supply these ROM's at no charge and you should contact your DTD Sales Development Engineer for the details.

**Asynchronous Repeater**

The Asynchronous Repeater (AR) is a stand-alone device which provides the asynchronous terminal user greater flexibility in configuring his network.

The AR can be used:

1. To extend the 50 foot (15.24 meters) limitation imposed when an RS-232C interface is used to 2000 feet (610 meters).
2. As a repeater to extend the distances between individual asynchronous multi-point terminals.
3. To increase the maximum cable length between groups of daisy-chained terminals.
4. To extend asynchronous point-to-point communications using the ATC up to 4000 feet (1220 meters) by using two devices.

The maximum possible distance between the HP 3000 and the last terminal in a multi-point group is 62,000 feet (18,910 meters)!

**When Can You Order?**

The following table lists the MTS/3000 components that appear on the June 1 Corporate Price List:



Price List for MTS/3000 Components

	Price	BMMC
<p>30055A SSLC</p> <p>One required for each multi-point line supported. Up to a maximum of seven per system.</p> <p>Option 01 — Asynchronous cable required for local asynchronous operation.</p>	\$2000	\$18
<p>30037A Asynchronous Repeater</p> <p>Option 15 - 230V</p> <p>Used to extend hardwired asynchronous multi-point networks or single asynchronous point-to-point lines.</p>	\$ 700 n/c	\$50 n/c
<p>32193A MTS/3000 Software</p> <p>Purchased once for each HP 3000 system regardless of how many multi-point lines are supported and:</p> <ul style="list-style-type: none"> <li>● 22823A - Opt. 019 MTS/3000 Monthly software fee (required for 48 months)</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>● 32193A - Opt. 02 prepaid purchase option</li> <li>● 22823A - Opt. 019 MTS/3000 Monthly fee for 12 months (12 × \$50)</li> </ul> <p>Software Subscription Service (SSS)</p>	\$1000     \$ 900 \$ 600	\$50      \$15

The above prices are subject to existing VEU and OEM agreements.

## Sales Aids

### MPE-III Field Training Manual

By: Roy Clifton/GSD

The features and benefits of MPE-III are contained in the MPE-III Field Training Manual. However, one important issue for existing Series II customers was not addressed. MPE-III requires 192 Kbytes of real memory. Therefore, existing 128 Kbyte Series II Systems will not operate with MPE-III.

In order to avoid supporting two different versions of MPE for Series II Systems, customers with 128 Kbyte Series II Systems will be upgraded to 192 Kbytes by GSD. The procedures for ordering the additional memory is contained in the MPE-III Support Plan. The customer's account Customer Engineer is responsible for ordering and installing the memory upgrade. All existing customers will become aware of this memory upgrade policy through the next issue of the Communicator.

Series II Systems ordered after May 1, 1978, must have been ordered with a 500 series option (memory expansion) and effective July 1, the minimum memory size for a Series II will be 256 Kbytes. This memory upgrade policy is not a large problem (GSD is aware of only twelve 128 Kbyte Series II Systems in the field) but we are sure these customers will appreciate receiving their "Customer Satisfaction" upgrades from HP.

MPE now has even more features and performance.

**GOOD SELLING!**

## Competition

### A Look at IBM 370-Compatible "Minis"

By: Gwen Miller/GSD

Hitting the presses in the past few weeks have been a number of product announcements of IBM 370-compatible machines which are sized and priced in the range of minicomputers. Before trying to decide on their competitive impact, let's take a look at what is offered.

#### What Are They?

The first entrant was Two-Pi, a subsidiary of Netherlands-based Philips. Their V/32 system operates at 370/138 performance levels (50-60% faster than DEC's VAX 11/780, DG's M600, or the Prime 500, they claim) and sells for \$200-400K to OEM's only. Memory size is 256 Kb to 4 Mb. All IBM-compatible peripherals are supported as well as all IBM software. NCSS is their first customer; their version (called the 3200) is limited to 2 Mb but adds extensive NCSS-developed software for database management, RJE, and a variety of interactive applications. A "typical" 3200 configuration (with 512 Kb, 200 Mb discs, 8 communication lines, and a 75 ips tape) sells for \$235,000. Deliveries are scheduled for mid-1978.

Using the same processor chips as the V/32 is the system 400 from National Semiconductor. National has developed a 3-processor architecture connected by a high-speed bus to boost expected performance to that of a 370/145 or about 1.5 times that of a 370/138. This is a completely different system from the 370/148-type AS/4 National builds for Intel Corp., and is in fact designed and manufactured by a separate division. Memory can range from 256 Kb to 16 Mb, in a price range of \$75-250K. Both IBM-compatible and "minicomputer-type" peripherals are supported. All IBM software can run without modification, although their emphasis is on the DOS/VS and VM/370 operating systems. A system configured the same as a "typical" NCSS 3200 sells for \$165,000. A prototype should be on the floor at the National Computer Conference in June, with trade deliveries in early 1979.

Two other entries in this market have been posted by Magnuson Systems Corp. (co-founded by Gene Amdahl's son Carl) and by Interdata. The Magnuson M80, models 3 and 4 will compete with 370/138 and /148 machines with more processors to follow. The M80 line is modular in that any of the functional units—CPU, memory, data channels, and controllers—may be replaced in the field with more advanced or higher-performance technologies. Another "obsolescence-proof" feature is its ability to be microcoded

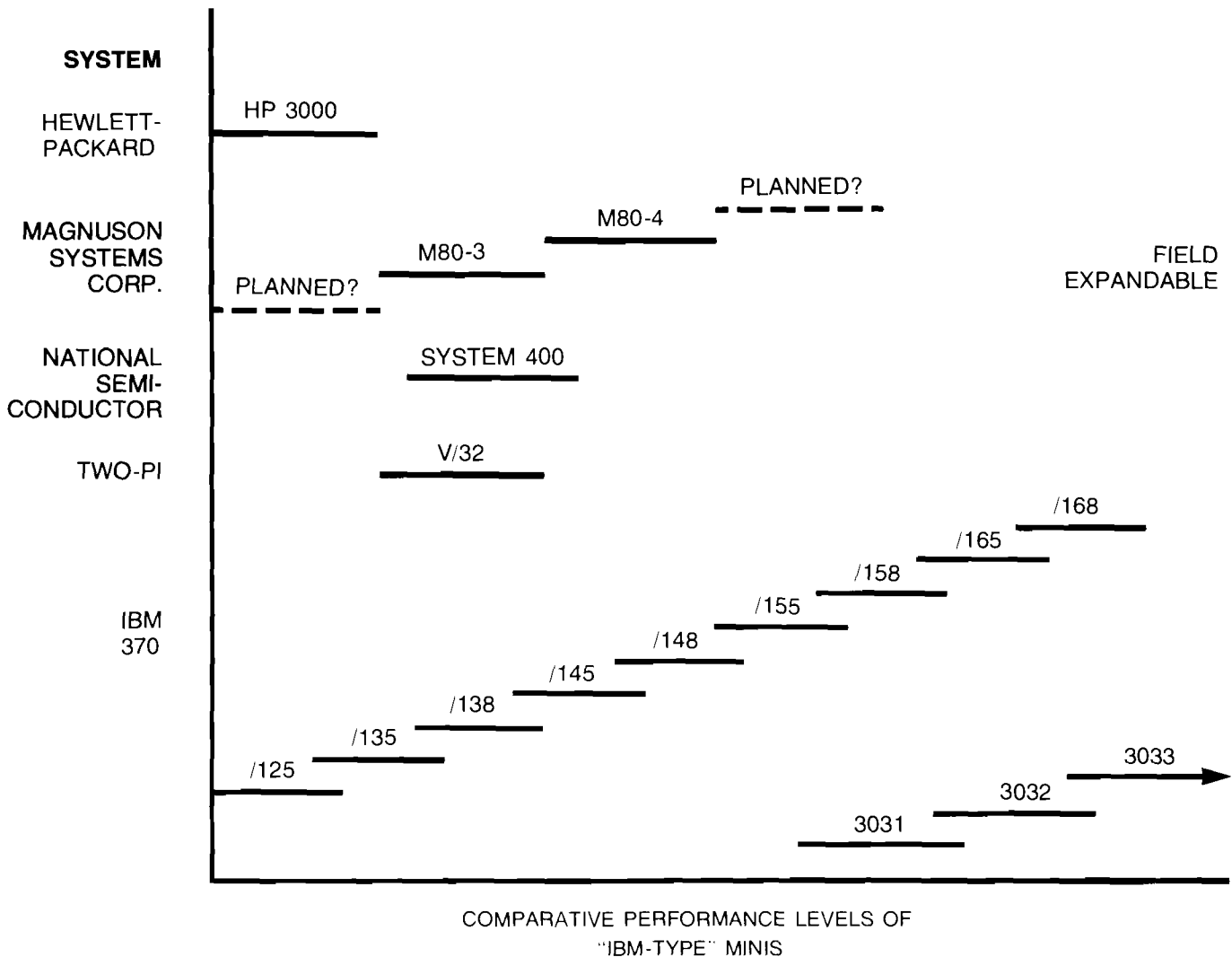
to emulate any system, not just IBM. Memory size can range from 128 Kb to 16 Mb. A 512 Kb Model 3 is priced at \$200K; more powerful systems will range to \$900K. Shipments are scheduled for June.

The Interdata 7/32 can execute IBM 370 instructions with the addition of firmware developed by Kardios Systems Corp. The microcode runs under Interdata's OS/32 operating system, allowing both IBM and Interdata instructions to run on the same machine. Kardios has not, however, included virtual memory capability in its IBM emulator.

The accompanying chart shows the performance positioning of these machines with respect to IBM models. The HP 3000 has been included as an approximate reference. From our experience the HP 3000 is really in a different performance application class than the present group of emulators.

**How Will They Affect the HP 3000?**

The greatest impact of these new computers will undoubtedly be in the IBM-replacement market, involving both low-end 360's or 370's and IBM look-alikes such as the Intel AS/4 and CDC Omega 480, both 370/148 emulators. NCSS is concentrating on these customers and on the



System/3 market. National Semiconductor, like Two-Pi, has not yet built a sales and service organization and so will be selling through OEM's to the timesharing and service bureau market. Magnuson, however, plans to sell directly to end-users. They have already established sales and service offices in Atlanta, Chicago, Dallas, New York, San Francisco, and Washington, with Detroit and Los Angeles to follow.

These systems are best suited for a somewhat different market from that of the HP 3000. Their major appeal will be to customers already having software ties to IBM. Users of software developed on IBM 370's at service bureaus can now bring the programs in-house at relatively low cost. Others may be attracted to these systems as low-end entries into a growth path that extends through IBM's powerful 3033. But this IBM-orientation typically implies a concentration on batch processing and complex software requiring a systems programming staff. For customers needing primarily on-line

transaction processing and program development, or who want a system simple to operate and maintain, the HP 3000 has clear advantages in terms of these capabilities—as well as significantly lower cost!

There are two other advantages of the HP 3000 to potential customers: The first is HP's established position in the computer industry with proven products and extensive field service staff. The second is that the compatibility with IBM peripherals is a mixed blessing, since these are typically much more expensive than minicomputer peripherals.

In summary, these new systems will compete more against each other than against the HP 3000. They are significantly more expensive; and while they are probably more powerful, their "power" is generally applied to batch-type applications. For on-line transaction processing, the HP 3000 still comes out a price/performance winner!

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# HP GRENOBLE NEWS

## Product News

### HP 2647A And Summagraphics Corporation

By: Christian Graff/HPG

The HP 2647A was announced as being capable of supporting Summagraphics data tablets as input device via HP-IB (IEEE-488). A wide range of digitizing tablets is available:

- Large tablets supply X-Y coordinates for cartography, interactive graphics, computer-aided-design, land analysis, architecture, space planning, medicine, etc. The map or plan to be digitized is placed on the digitizer and X-Y values are entered with either a stylus or a cursor.
- Small tablets can hold a menu, chart, table, listing etc. . . whose X-Y coordinates have been preprogrammed by the user to have specific meaning. The menu is in fact a keyboard permitting the entry of both alphanumeric and symbols. Different overlays vary and modify menu items and meanings for different applications.
- A dual system with a small data tablet and a large graphic digitizer sharing the same controller provides maximum flexibility in digitizing graphics and entering alphanumeric, control and variable data.

Tablet sizes range from 27.5 cm x 27.5 cm to 105 cm x 150 cm and corresponding prices range from about \$3800 to \$9600 with an additional \$900 for HP-IB interface and cable.

Summagraphics Tablets will not be supplied by HP as a standard option to the HP 2647A and it is up to the customer to order them from the local Summagraphics distributor in his country.

Here is a list of Summagraphics representatives all over Europe:

**DATAMATRIX AB** Tel. 0760 55800

Box 106  
19030 SIGTUNA  
Sweden

Mr. Willy Vatermann  
Mr. Bo Gören Wingren

**JERTEC OY** Tel. 54 20 77

Konalankuja 4  
00391 HELSINKI 3  
Finland

Mr. Raimo V. Tiensuu  
Mr. Jorma Keturi

**REGULATION-MESURE Sprl** Tel. 771 20 20

Av. R. Vandendriessche 73  
1150 BRUXELLES  
Belgium

Mr. Herbert

**METROLOGIE** Tel. 791 44 44 x5031

4, av Laurent-Cely  
92606 ASNIERES  
France

Mr. Alain Schwartzmann

**DATA CARE BV** Tel. 03404/21344

Laan Van Vollenhove 2925  
ZEIST  
Holland

Mr. J. J. De Ruiter

**KRONTRON AG** Tel. 01/62 92 62

Bernerstr. 167-169  
8048 ZÜRICH

Mr. A. Bühler

**KONTRON ELEKTRONIK GmbH** Tel. (08165) 77-1

Oskar-v.-Miller-Str. 1  
8051 ECHING b. MUENCHEN  
Germany

Mr. Rudi Schmidt

**TELCOM S.r.l.** Tel. 4228646-4239844

Via F. Carlini 5  
20146 MILANO  
Italy

Mr. Pietro Bonoldi

TERMINAL DISPLAY SYSTEMS Tel. 0044 254 66 22 44  
Hillside, Whitebirk Estate  
Blackburn BB1 5SN  
England  
Mr. Bob Astley

UNITRONICS S.A. Tel. 242 52 04  
Torre de Madrid  
Princesa 1  
MADRID (13)  
Mr. Jaime Salama

KONTORN GmbH & Co. KG Tel. 94 56 46  
Ameisg. 49  
VIENNA  
Austria  
Mr. Werner Pretting

Summagraphics products have already been successfully connected to HP equipment as the following picture suggests:



## Division News

### Do You Remember The Last NPT?

By: Francis Marc/HPG



TRAVELLING IS SUCH A PLEASURE!

Horst Guther, Ed Hayes, Richard Franklin, Ted Doyle plus some excess luggage!

Dave Borton and Peter Stuart flying back after one of the DSD presentations.



PREPARING THE DEMONSTRATION

*Christian Graff, Maurice Poizat, Franz Schiller (Vienna) and Ed Hayes.*

*Ed Hayes, Francis Marc and Rich Franklin with Robert Lambert and Michel Tcheng, the two French terminals specialists.*



DEMONSTRATING THE 2647A!

*Ed Hayes converting the British Sales Force into another "Intelligence Service".*

*Graham Ball, Ross McBeath, Les Bunce trying by themselves later on.*



IS THIS WHAT WE GET ORDERING FROM EXHIBIT C OF THE MENU?



GIMME BACK MY FAN-TAS-TIC 4 COLOUR INTRODUCTION SLIDE!

SOME OTHER "SECOND DAY" HEROES

*Ted Doyle* who introduced the new price/discount policy. (*Ed Hayes* chatting with *Marcel Jacques*, Orsay).

*Horst Guther* (BBN) who ran the impressive San Diego plotters presentations.

## General News

### Read This, And Do Not Forget!

By: *Maurice Poizat/HPG*

Each time a 2649A CUSTOMER TRAINING COURSE (13294A) is given, it is easily noticeable that your customers have not been prepared to take it. Remember that the PREREQUISITES are:

- Familiarity with the 264X terminal from a users' point of view.
- Elementary knowledge of the 8080 instruction set.
- Some experience in microprogramming.

Please, make sure that your customer is qualified as such, before sending him on the course! So, take the appropriate actions so that he is prepared: you can lend him a 2645A so he can play with it; you can advise him to attend an INTEL Microprogramming Course. The SUCCESS OF THE COURSE also depends on the qualification of the customer.

Another point to mention: we have a lot of applications for the course and your customer will get the first priority on the course if he places an order for the 13294A product. So, when a customer wants to attend the course, register him in Grenoble as soon as you can and confirm by the time the order is placed. This will allow us to organize the course in a better way.

**THINK OEM!**

# CS GROUP NEWS

## CSG News

### CSG Hosts Outstanding Sales Training Class

By: Bob Lindsay/CSG



Front (kneeling): *Vince Cavell, Barry Barnes.*  
Second Row: *Lynn Gardner, Paul Taltavull, Stuart Jones, Melissa Martin, Bill Randall.*  
Third Row: *Roger Settergren, Andrew Piekarski, Filiberto Arredondo, Jorge Llanderal, Juan Antonio Tello, John Brown, Bob Noyes, Gordon Shuler, Pete Watters, J. G. Moore, Paul Buote.*  
Fourth Row: *Tom Wilkins, Kevin McDonnell, Paul LaGreek, Mark Fogerty, Rob Biggen, John Conroy.*  
Fifth Row: *Tom Gancarz, Mark Skrzynski, Les Flammer, Dennis Neeland, Jim Lawshe.*  
Not visible: *Bob Hilliard, Bob Jones.*  
Not in picture: *Gary Chesnutis, Eric Isacson, Paul Accampo.*

CSG Overview Class 19 will go down in history as a class to remember.

Arriving in Cupertino on May 15th, they rapidly developed an esprit-de corps which culminated in a never-to-be-forgotten Mid-Term Dinner on May 25th when Division instructors and fellow students alike received mock diplomas and special recognition the likes of which will be hard to beat.

Watch out, competition, these tigers will knock your spots off!

## Corporate Training & Management Development

### NEW VIDEOTAPE INFORMATION

#### New Videotapes from Corporate Training

By: Chuck Ernst/Corp.

Title:	LANGUAGE AND SUBSYSTEM ENHANCEMENTS FOR 1814 MIT (MONOCHROME)
Audience:	HP Systems Engineers
Purpose:	To describe subsystem enhancements.
Content:	<i>Dave Walmsley</i> , Current Products Project Manager in the HP 3000 Lab of General Systems Division, describes six subsystem enhancements for distribution on the 1814 MIT. The discussion covers: FCOPY, COBOL, EDITOR, FORTRAN, DEL, and BASIC.
	This program is intended for viewing by HP Systems Engineers.
Time:	13 minutes.
Part Number:	90761Z
Date Released:	June 1978
How To Order:	Transmit a HEART (COCHISE) I2 order to Video Products, Product Line 95, Division 0700, Palo Alto. Order 90761Z for a videocassette.



# Die Hewlett-Packard Familie ist...



## ...intelligent,

Das HP 2645A ist unser intelligentestes alphanumerisches Terminal. Mikroprozessorstuerung erlaubt einfache Korrekturen, »durchblättern« von Seiten und Erstellung von Eingabemasken. Frei definierbare Funktionstasten und 9600 Baud Übertragungsrate sind weitere Besonderheiten.

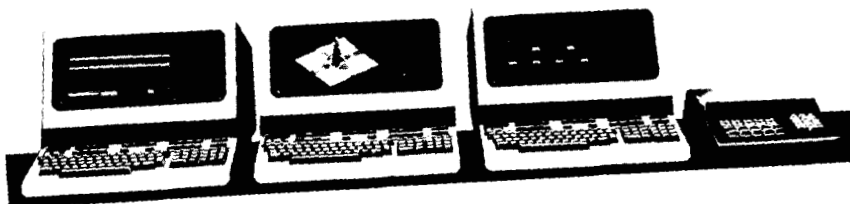
## hell,

Das HP 2648A bietet volle alphanumerische und grafische Möglichkeiten (Anzeige getrennt oder gleichzeitig), Auto-Plot, Raster, Ablasstechnik, Zoom und »Durchfahren« des Zoom-Ausschnitts, Schattieren von Flächen, Delimitieren von Mustern, »Gummibandlinien«.

## unkompliziert, handlich,

Mit dem modularen HP 2629A können sich OEM's »hinzuliegen« Terminal, Steuergerät oder Grafikdisplay aufbauen. Die Basis bilden Bildschirm, Mikroprozessor 8080, E/A-Logik und Backplane, dazu kommen Steckkarten, Tastaturen und die notwendige Programmierung.

Das numerische Eingabeterminal HP 3071A verbindet Ihr Lager, Ihren Versand oder die Produktion über CCITT V. 24 mit dem Computer. Das HP 3070A ist auf der Interface-Seite IEEE-488 kompatibel.



## flexibel,

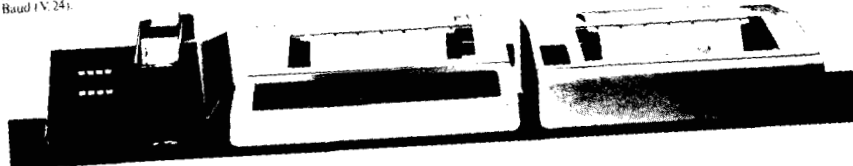
Der optische Markierungsleser ist eine vielseitige Eingabestation. Er liest mit Blersicht markierte oder getoichte Karten. Übertragungsrate bis 2400 Baud (V. 24).

## komfortabel

Der Drucker HP 2631A und das Druckerterminal HP 2635A erledigen Hard Copy-Aufgaben spielend. Durch die 7 x 9 Punkte-matrix nach USASQ II-Standard lassen sich Unterlängen und Unterstreichungen ausgeben.

## und schnell.

Drucker und Druckerterminal arbeiten mit 180 Zeichen/s vor- und rückwärts. Der günstigste Druckweg wird vom Mikroprozessor ermittelt, und Tabellen sind noch schneller erstellt, da Leerstellen übersprungen werden.



Diese kompatible HP Peripherie-Familie unterstützt Hewlett-Packard aktiv mit Service, Training und Dokumentationen.

Sie sollten sich näher über diese und weitere Geräte unserer wachsenden Peripherie-Familie informieren. Rufen Sie uns an, oder füllen Sie den Coupon aus.



Hewlett-Packard GmbH Vertrieb, Berner Straße 117, 6900 Frankfurt/M. 50

HP 2645A  das OM Terminal/Steuergerät HP 2648A  das OM Terminal HP 2629A  das OM Terminal/Steuergerät HP 2645A  das Drucker HP 2631A  das Drucker Terminal HP 2635A  sonstige Peripherie  HP M-Rohrte und Kondensator  
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# COMPUTER SYSTEMS NEWSLETTER

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