

COMPUTER SYSTEMS NEWSLETTER

For HP Field Personnel

REINHARDT, HELMUT
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GFR



Vol. 5, No. 10
April 1, 1980



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Introducing . . .

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COMPUTER SUPPORT NEWS

Product News

Software Support for HP 250

By: Steve Rowe/CSD

One of the stated requirements for purchasing CSS or SSS is that the same level of support be purchased for all software products included on a particular system. The basis for this requirement stems from the inter-relation of different software products.

In the case of the HP 250, the decision has been made to not offer CSS at this time on the HP 250 application packages. This decision was caused by the added complexities of providing CSS-type support for source-code products. These two situations may appear to generate a conflict. How do I enforce commonality if CSS is not available for all software products? The answer is, you can't. We can't force the customer to buy a product which is not available. In this situation, it is permissible to sell one level of support for the HP 250 Operating System and another for the application package. Future data sheets and contracts will be adjusted to support this situation.

Training News

North American Customer Training Schedule

By: Carolyn Stewart/CSD

The Summer issue of Customer Training Schedule will be distributed beginning April 1, '80; this issue will cover May, June and July.

During the next few months, the CSD Marketing Department plans to redesign the format of the North American Customer Training Schedule. We also plan to upgrade the quality of information contained in the schedule.

By adopting a new format and establishing a shorter publication schedule, we hope to provide our customers accurate, timely information about HP training courses.

If you have any suggestions regarding this schedule, please forward them to *Carolyn Stewart*, 19310 Pruneridge Avenue, Cupertino, CA. 95014.



HP Computer Museum
www.hpmuseum.net

For research and education purposes only.

DESKTOP COMPUTER DIVISION NEWS

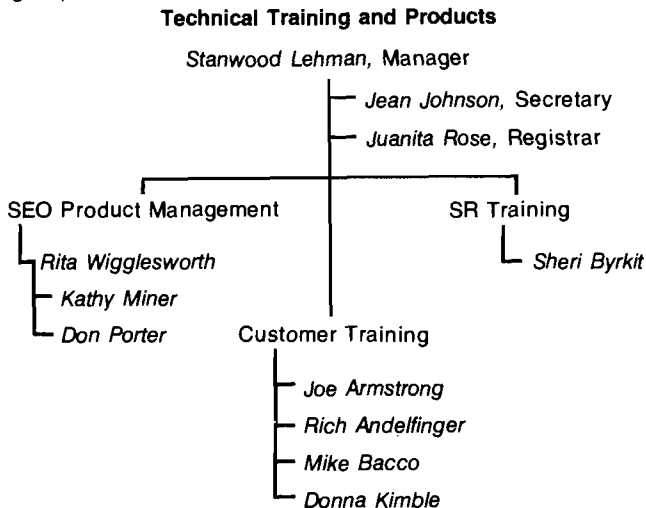
Division News

SEO Product Management Established at DCD

By: Stanwood Lehman/DCD

Part of DCD Marketing is realigning to better support the growth of, and changes to, the Systems Engineering Organization and its resulting needs. An SEO Product Management group has been formed as part of the Technical Training and Products group.

Rita Wigglesworth will head the SEO Product Management team designed to meet the SEO's growing 'off-line support' needs with desktop computers. 'On-line support' will still be handled through the product line, where fires can be put out more rapidly and directly. Keeping the SE's visibility and priorities high at DCD is an underlying objective of this group.



Currently, the SEO Product Management group's responsibilities include helping the SEO and our customers, through the SEs, in three ways: training, communication and products.

Training will act as a focal point for the SE in the midst of our rapidly growing organization and the increasing complexity of desktop computer systems. In response to SEs' needs, cohesive training programs will continue to be developed to provide a solid base of technical knowledge and expertise.

Communication will include: the *Technical Exchange newsletter* — a vehicle to help SEs exchange information more easily; *SE Notes* — a reference containing SE policies, procedures and product-oriented technical papers; and an SE Starter Kit which is being developed to provide the new SE with basic DCD documentation.

It is our challenge to identify and initiate technical support products which will extend the Desktop SE's ability to help customers solve problems and bring revenue into the SEO.

In summary, the formation of the DCD SEO Product Management group will provide the SE with a focal point at DCD. The group will also increase the visibility as well as the priority of SEs' needs to better solve our customers problems.

SE Starter Kit

By: Don Porter/DCD

The SE Starter Kit, 'All You Ever Wanted to Know About Desktop Computers,' will soon be available from the Software Distribution Center. Orders placed beginning mid-April for P/N 5955-6070 will be quoted as shipping two weeks ARO. (Ordering information: HEART 12, supply division 5006, please advise).

The Starter Kit contains:

- Reference manuals for the current line of desktop computer mainframes
- Reference manuals for the current line of interface cards
- Training tapes for the System 35 and System 45B
- Field training manuals
- A list of pertinent data sheets and sales brochures to be collected from the local office literature racks
- A list of 'office copy' support supplies that should be easily accessible should the need arise (e.g., system exerciser tapes, utility libraries and demo tapes)
- A 'Welcome to the SEO' letter from the DCD factory support team

The contents of this starter kit will be reviewed each quarter to keep it current related to the desktop computer marketplace. When changes are made, the entire list of part numbers that make up the starter kit will be sent to each Area SE Manager as a file copy.

We at DCD want to help new SEs over that first product learning hurdle — and now we have a way to get started.

PL97 Sales Development Change

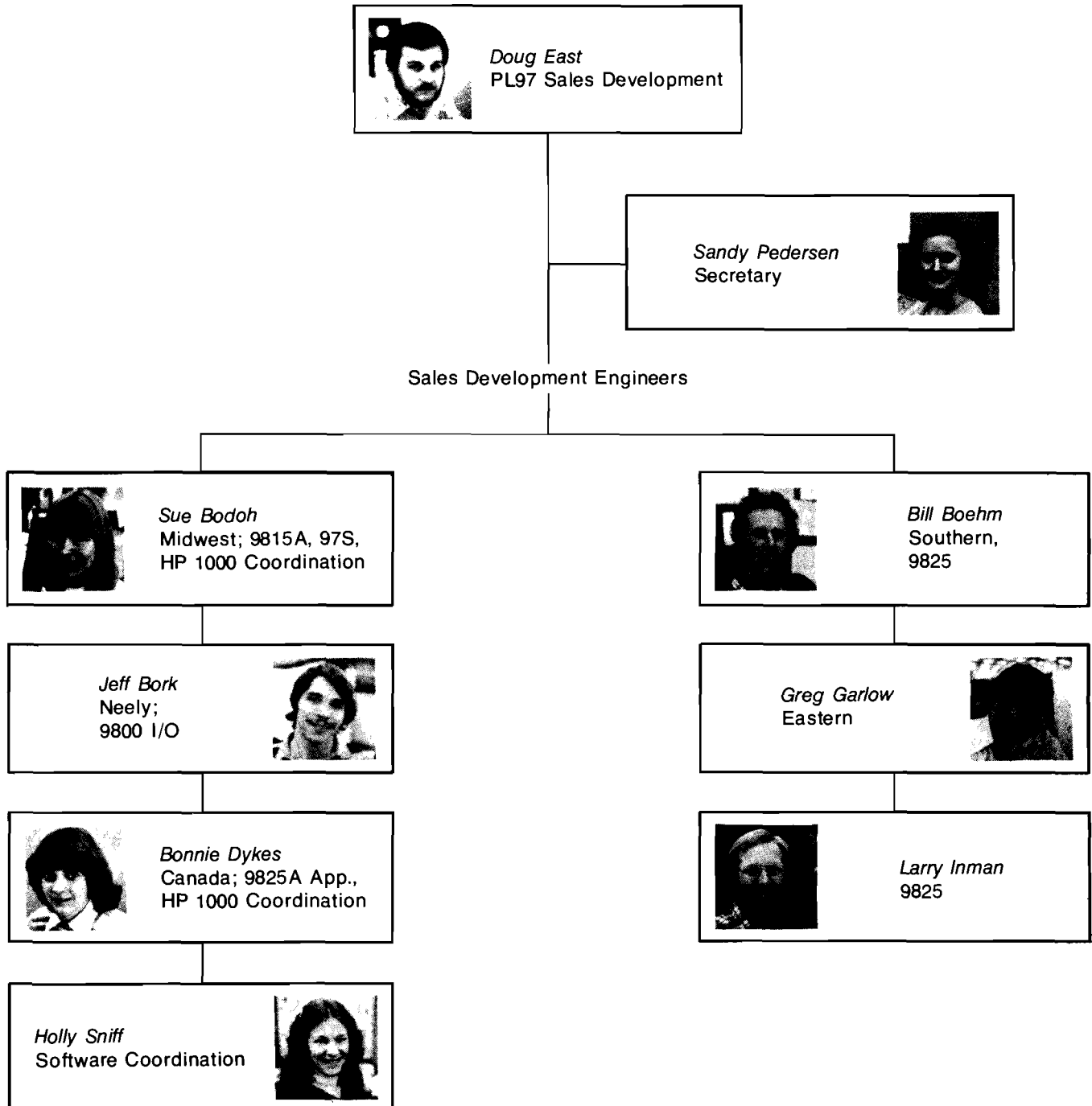
By: Doug East/DCD

We have recently made some organizational changes within PL97 Marketing in an effort to become more responsive to both short- and long-term opportunities for the product line.

Basically, we have moved the responsibilities for managing current products — HP-97, 9815 and 9825 — into the Sales Development group, allowing *Bert Desmond's* Product Management group to concentrate its full-time effort on future products.

Bonnie Dykes, Holly Sniff and Larry Inman have moved into the Sales Development group along with the products and we've also made some new assignments in our Regional Support contacts (see below), to better use our resources and be more responsive to the field.

PL97 Sales Development



Product News

Introducing HP System 9030

By: Phil Farley/DCD

The new HP 9030 Measurement and Control System includes a choice of desktop computers (HP 9825, 9835 or 9845) combined with DSD's 2240 Measurement and Control Processor into a portable, programmable automation system with D/A, A/D and digital control capabilities. The system includes a system exerciser program comprising system self-tests, system configuration information and a means of exercising and verifying hardware features.

The System 9030 will be introduced to the public in HP's Measurement/Computation News, *Electronics*, April 17 issue. Be sure to read this; it should bring you valuable leads.

New Product Tour

The US field force received training on the HP 9030 during the March NPT Tour. There was much interest in the videotape, which shows how a customer experiences a very smooth startup when his HP 9030 system arrives. The videotape is available through the HEART system as P/N S121.

A common question asked of NPT presenters was on the additional plug-in connectors that are available. Their part number is 1251-4878; the price is \$41 (US).

Support literature includes:

- Full color technical supplement, P/N 5953-4522
- Pricing information and order guide, P/N 5953-4521
- Field training manual, P/N 09030-90800.

The HP 9030 will be orderable in April, with the same availability as the desktop controller selected.

Thermal Printer RS-232-C Interface to Help OEM Sales

By: Sirio Sconzo/DCD



HP 9876A and HP 11479A Thermal Graphics Printers

with • RS-232-C
• 20 mA current loop

for fast, quiet, reliable alphanumeric and graphic output from computers, CRTs, instrumentation systems and modems

Order as HP 9876A Opt. 002
HP 11479A Opt. 002

Quantity Discount for HP 97S

By: Sue Bodoh/DCD

Beginning April 1, '80, customers can optionally order the HP 97S in quantities of five with a new part number, 97SD. This package of five 97S's is priced at \$6,530, giving a 5% discount over ordering five 97S computers separately for a total of \$6,875.

OEM and Volume-End-User discounts will apply to the 97SD price, and each 97SD will earn 0.5 functional units toward your contract commitment. Each 97SD must be ordered with only one ship-to address and only one foreign language option.

Used Equipment Exchange

By: Al Sperry/DCD

Several items of used HP desktop computer equipment are available from DCD customers. Again, Opt. 888 is merely an internal code that does not physically affect the equipment.

9830A, Opts. 275, 888; Strings and APR ROMs.

9871A, Opts. 030, 888.

9830A, 30K, Opt. 888; String and Matrix ROMs, Structures Software

9871A, Opt. 888, Form Feed

9845S, Opt. 888; \$11,800 or best offer.

Unless otherwise indicated, prices are negotiable. For more information, contact *Chris Stumbough* or me at DCD.

Fire Sale of HP 9845A/S

By: Bill Cummings/DCD

DCD has parts on hand to build 50 HP 9845A/S computers. We want to build *and* sell these machines, and we're willing to discount the price to do it.

Effective immediately and for as long as the parts last, we will sell brand-new 9845S's at an impressive 30% discount! The discount applies only to the standard configurations — not add-ons. It also applies *only* to sales regions supplied by DCD, Fort Collins (Div. 40).

Delivery is also a big plus: 5 weeks ARO.

This is obviously a great buy when you consider the customer can purchase a "B" or "T" upgrade later.

Orders can be placed by overriding the HEART system and loading a manufacturing discount block of 30%. Orders should be placed in the HEART system with a non-product file entry as follows:

Model	PL	Descr.	List Price	Mkt	Supp
9845A	96	Desktop Comp.	\$13,000	40	4096
or					
9845S	96	Desktop Comp.	21,000	40	4096

Please note: these products do not appear on the availability schedule.

Sales Aids

Factory Support of HP 9825 Selling Effort

By: Jim Geer/DCD

To make your field selling efforts easier, DCD has developed a promotion plan to enhance HP 9825 sales.

We know you need to know where the phone calls and leads come from, so a package was mailed to you explaining the plan. As the letter in the package explains, the elements of the promotional program are an HP 9825 reply card inserted into the desktop computer systems advertisement entitled, "Scientists and engineers find today's desktop computer systems powerful tools for data acquisition and control," plus two direct mail packages. The direct mail is going to some 4,000 HP-IB ad respondees and over 1,000 respondees to the Leibson article, "What to look for when automating an instrumentation system," published in *Instruments & Control Systems* magazine.

Even though, as the package explains, it includes advertising and direct mail to boost sales, this type of effort doesn't do much good unless you in the field are aware of the program and support it with your efforts. You now have copies of the ad, postcard and direct mail letters; since you're aware of this particular promotion plan, we are counting on you helping yourself and us!

Making Keyboard a Worldwide Publication

By: Bill Sharp/DCD

One primary objective of *Keyboard*, the customer publication sent to all interested owners or users of HP Series 9800 desktop computers, is to present information about customer applications from around the world, fairly representing all sales areas.

During the next year and beyond, *Keyboard* will publish at least one article per issue detailing the applications of customers in Europe. (European customers are responsible for almost 50% of DCD sales).

The program to publish more European articles has already begun with an article on Rolex in the Jan/Feb '80 issue, and another from Edinburgh, UK, on plotting functions of two variables, which appeared in the Mar/Apr issue. To continue this effort, material was gathered for eight more articles in a recent tour of customers in The Netherlands, Germany, France, Ireland and UK.

Publication of these articles in upcoming issues should be of considerable help to both the customers featured and to our broad worldwide customer base. *Keyboard's* need for strong articles from customers in target markets such as engineering and design applications in manufacturing will continue.

Dave Arrowsmith, *Keyboard's* new European editor, and I, will be happy to supply any customers of yours with material to aid them in writing articles for possible publication in *Keyboard*, or for use in other publicity efforts (author guidelines were printed on p. 21 of the Jul/Aug '79 issue). We also have 'customer application forms,' which give us the information we need to pursue an application article for your customer, and a list of questions for your customers, which, when answered in detail, supply them with nearly all the information essential to a good article. Help us to provide a better mixture of articles from around the world.

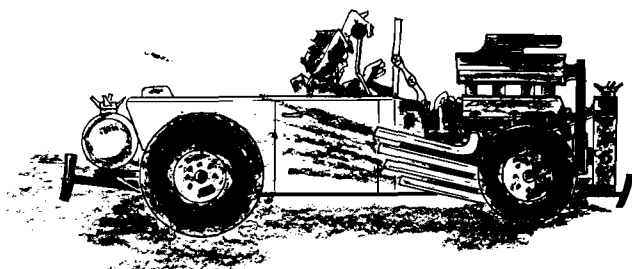


DATA SYSTEMS NEWS

Product News

ACCEL/1000 — Program Acceleration and Performance Improvement

By: John Koskinen/DSD



The HP 1000 RTE Profile Monitor (RPM) is now available for your performance-conscious customers. The RPM software allows your customer to profile program activity and find the *hot spots*.

Typically, 80-90% of program execution time is spent in 3-5% of the code. RPM identifies those places and lets the programmer zoom in on the computation problem. Very often, the user can get improvements simply by rearranging subroutines or increasing data or file buffers. Usually by moving some routines to assembler, speed improvements of 3-4 times can be realized. Using the Vector Instruction Set for some DO loops, 5-10 times speed improvements will be seen. The RPM software is available as ACCEL/1000 — 92082A.

The ACCEL/1000 package is the first HP-supported software package that allows customers to take the guesswork out of performance improvements in application programs. Typically, performance takes a backseat during the development cycle while programmers concentrate on just getting the problem solved — once all the programs work, performance becomes the overriding issue. ACCEL/1000 is especially well suited to helping the customer's performance problem because it really lets the customer gauge how much effort he wants to spend or how deep into the system he wants to go for speed improvements. As is outlined in the data sheet, the customer can go to three levels of effort:

- Rearrange program code
- Move code to assembler
- Move code to firmware

The primary objectives for bundling the RTE Profile Monitor and the miniprogramming package are:

- Easy introduction to assembler and firmware options for performance improvement — they don't have to use either, but the benefits will become obvious once they start profiling some code.
- Customers expecting to use microcode from the beginning of a project will benefit tremendously when the profiler points to the exact routines which need treatment.

It is important to distinguish between the RPM software and the Activity Profile Generator available in the contributed library, PLUS. The following table summarizes the pros and cons.

RPM	vs	APG
Friendly		Requires WCS board
All software		Two sets firmware (E&F)
Graphical output		No segmented progs
On-line Zoom		Program abort = system reboot
		No graphical output
		No on-line zoom
		Not supported

ACCEL/1000 Ordering Information	
92082A	\$2,500
-001 Upgrade Discount	(1,000)
Also from 92061A	
92082R	1,000
Right-to-copy	
92082S	15/month
SSS	
92082T	30/month
CSS	
92082V	10/month
Additional System	
92082W	5/month
Right-to-copy updates	

HP 1000 Front Panel Questionnaire

By: Mark Beswetherick/DSD

A COMSYS was sent to the field in early March advising that Data Systems Division is considering modification of HP 1000 M/E/F Series CPU front panels. One of the proposed changes is the elimination of the front panel lock. It would be replaced by two spring clips. The front door would still be hinged.

Today's method creates many production problems. It is also redundant in some cases because all HP 1000 Systems have locking front doors.

We need your help! If you did not respond to the questionnaire in the original COMSYS, please give us your views here:

Yes! Go ahead and remove the front panel lock.

No! Don't remove the lock because _____

Here are my suggestions for front panel changes

Send or COMSYS replies to: Mark Beswetherick/DSD
Bldg 42U/COMSYS 2200

Thanks!

PASCAL Does Not Work with DATACAP!

By: Millo Fenzi/DSD

Contrary to statements printed in some of the PASCAL promotional literature, PASCAL *does not* work with DATACAP. Specifically, you cannot use a PASCAL subroutine as a user-written subroutine appended to a DATACAP transaction. You can, however, write a FORTRAN subroutine that then calls a PASCAL subroutine. If you have established a FORTRAN subroutine common environment, then the FORTRAN subroutine can pass necessary parameters through to the PASCAL subroutine. An example of this type will appear in the next PCO update to the DATACAP manual.

Please relate this information to any customers contemplating DATACAP/1000 use in a PASCAL programming environment.

Order Processing

Administering Terms & Conditions of Sale

By: Hal Eubanks/DSD

There appears to be an increasing lack of awareness, understanding, and consistency in administering HP's Terms and Conditions of Sale, especially in regard to price and processing changes and cancellation orders. It is important that HP Terms and Conditions of Sale be administered from a legal standpoint and to avoid any unnecessary confusion between HP and our customers.

Basically, in regard to price, a quote is valid for 30 days and prices are valid only if buyer's requested delivery date (including any change orders) is within 6 months of the order date. In regard to change orders and cancellations, if the buyer issues a change order causing a delivery delay or cancels products less than 60 days prior to scheduled shipment, buyer will be subject to a 5% charge based upon list price for the affected products.

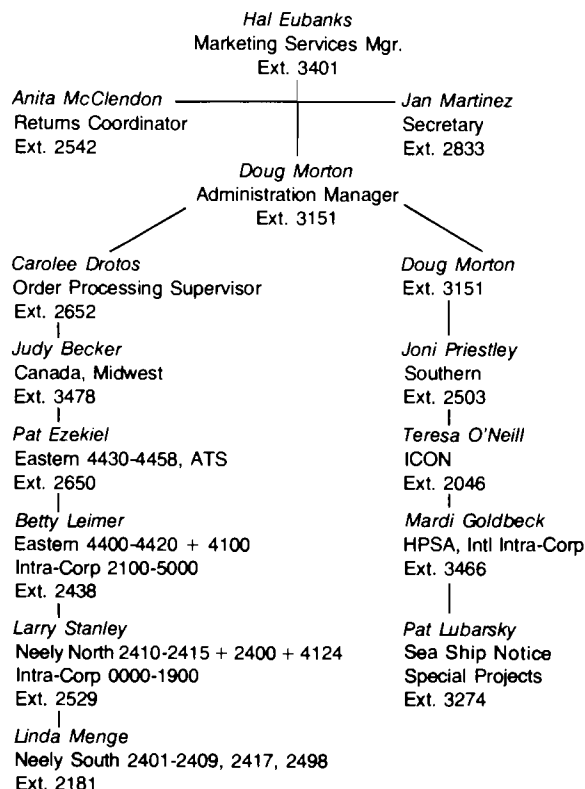
Please review HP T&C especially as it pertains to Pricing, Changes and Cancellations. You should be thoroughly familiar with all aspects of HP T&C and set proper customer expectations when selling and administering your accounts.

OP Organization Update

By: Doug Morton/DSD

DSD OP continues to be structured by sales region in an effort to provide you with a single factory contact.

DSD Order Administration



Correction to "On-Line Diagnostics Package" CS Newsletter, March 1, '80*By: John Koskinen/DSD*

Ordering information in this article in March 1, '80 issue of the *CS Newsletter* is incorrect. The correct ordering information is:

Item	Price
91711A	\$500
-001 Update Discount	(200)
020 Cassette	30
050 800 BPI MT	0
052 1600 BPI MT	0

Sales Aids**RTE-III Support Services Back on CPL***By: Gary Lim/DSD*

Since RTE-III has been classified as an Inactive product (software maintenance for serious bugs, support products

available for five years from initial inactivity), RTE-III support services are now back on the CPL. These support services will continue to be available until at least Nov. '83, since the product was initially made inactive in Nov. '78.

In all cases, customers should be encouraged to buy RTE-IVB, but for those who must continue with RTE-III, check for up-to-date software before ordering support. If the software is not current, the RTE-III Option 001 upgrade can be ordered via a HEART override.

Call me on ext. 2063. If you have any questions.

DSD Current Sales Aids*By: Ted Proske/DSD*

An updated list of current DSD sales aids has just been sent to the person in charge of sales literature in your office. Check with them for information. Additional copies may be requested from *Chris Carney* at DSD (408) 257-7000 ext. 3502.

DATA TERMINALS NEWS

Product News

New Interface Standards

By: Andy Zaremba/DTD

In an article in the March 15 '80 *CS Newsletter* we discussed the present interface standard for Data Terminal Equipment (DTE) and Data Communications Equipment (DCE). It was mentioned that despite its success in providing a good interface standard, time and technology have taken its toll on RS-232C and today it has several major deficiencies. Among these problems are:

- 50ft. distance limitation
- 20K bits/sec. limitation
- cross-talk problems
- non-compatible voltage levels with current IC technology

To get around some of these difficulties new interface standards are being developed and implemented. Increasingly you will hear about the new standards, and it should be helpful to have some familiarity with them.

The basis of the new standard is RS-449 which defines the *functional* and *mechanical* characteristics of the interface. To complicate matters the *electrical* characteristics are specified by two other standards (employing two different techniques) called RS-422 and RS-423.

The functional and mechanical standards specified by RS-449 include such things as the number of circuits present at the interface, their function, and the connectors. RS-449 employs a 37 pin connector (an increase in 12 over the RS-232C standard) and requires an additional 9 pin connector if secondary channel information is required. The interface, naturally enough, does contain many of the same control lines as RS-232C but in addition adds loopback test features and other circuits.

The electrical details of how these circuits are implemented is the subject of the RS-422 and RS-423 standards. RS-423 is more similar to the RS-232C implementation in that it uses a single ended or "unbalanced" transmitter. This means that transmission of signals is done over a single wire; the transmitter references its voltage level with respect to its signal ground and the receiver references the received signal with respect to its signal ground. The fact that these

two "ground" potentials may be slightly different, and that only one point is used in common with many circuits gives rise to both noise immunity and cross-talk problems. While this is common to both RS-232C and RS-423 transmit circuitry, the RS-423 standard employs more sophisticated differential receiver techniques with a higher sensitivity to reduce these problems.

Data transfers as high as 100K bits/sec over 40ft. distances can be accomplished, and while the rate decreases with distance even distances of 4000ft. will accommodate transfers at 1K bits/sec. Additional advantages include compatibility with IC voltage levels, and the possibility of interfacing devices utilizing RS-423 with RS-232 through the use of special adapters and voltage division resistor networks.

The RS-422 standard utilizes an entirely different technique. Here the transmission of information is accomplished over two wires per circuit. This "balanced" transmission method greatly reduces cross-talk and noise problems as well. The penalty you pay is the expense of the extra wire and the space it occupies in the connector. But for the price, this balanced transmission method coupled with a sensitive differential receiver offers impressive performance. RS-422 can provide 10M bits/sec. data rates at 40ft. and decreasing rates with increased distance, yet can still provide 100K bits/sec at 4000ft. As with RS-423, the RS-422 voltage levels are compatible with those of current IC voltage logic levels.

These descriptions provide the basics of the new interface standards. As you can see they offer considerably higher performance and alleviate many of the deficiencies of RS-232C.

HP 2649I OEM Terminal: Catch the Wave!

By: Eric Grandjean/DTD

What is the HP 2649I?

It was introduced as an OEM product and is officially known as an Intelligent OEM terminal. It's a programmable HP 2645A!

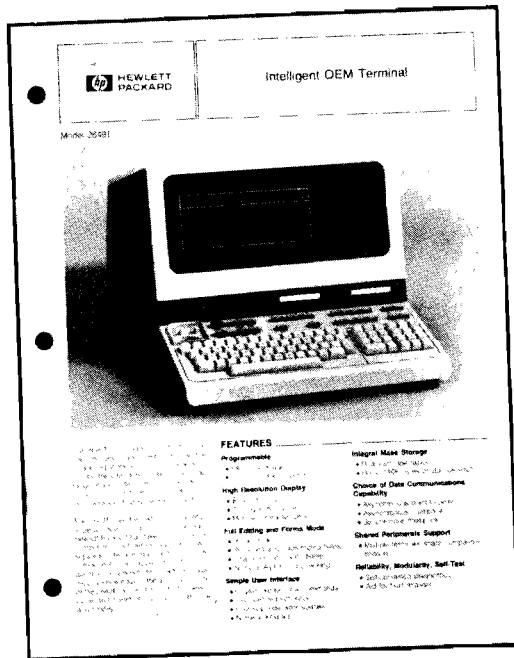
The fact that it is a 2649 does not mean that anyone should not take advantage of its unique features, not just OEMs, but end users too! End users can buy it at list minus quantity discount, OEMs at list minus 10% OEM discount and quantity discount.

You may want to look at the intelligent 2649I as a microprocessor system with a BASIC interpreter language, up to 25 Kbytes of workspace, built-in twin tape storage up to 220 Kbytes of capacity, HPIB interface to connect hardcopy subsystems and peripherals and much more.

The HP 264X series has still the best looking character set display in the industry, which greatly helps reduce fatigue and errors under heavy use. How could you miss all this? It's not only gold for you, but the 2649I is what many people have been looking for a long time, to help enhance their applications and/or cut their EDP costs.

The beauty of the 2649I, like the rest of the HP terminals, is that it communicates with systems like a good old TTY, which most systems in the world support in one way or another.

Significant features are: complete control of the screen and keyboard from the high level Basic interpreter, built-in tape and peripherals management firmware, two I/O slots for display enhancement and peripheral interfacing. This product is backed up by a detailed data sheet and a set of 2647A reference and programming manuals.



We plan to reinforce the product during the next NPT after a rather low profile introduction last November. Its price of \$7,750 is very competitive when you compare it's features to what is available today. Demo's of the 2649I can be conducted on a 2647A, which is a super set of the 2649I, with graphic capability. The Basic System support is teletype and you've got it. The rest is normally left to the user to develop in the context of his application.

The next enhancement planned on the 2649I will be an extension feature to allow users to get down to the assembly language level from the Basic Interpreter, allowing the additions of extensions to the terminal Basic. That capability is expected within the next six months. No modifications will be necessary to implement it on existing installations.

So, if you have been missing the 2649I, now is the time to catch the wave!

Sales Aids

HP 3075/3076/3077 DATACAP Demos on 2647A

By: Rene Feitelson & Andy Zaremba/DTD

There are now two great BASIC programs for the HP 2647A to demonstrate the capabilities of the HP 3075/3076/3077 Data Capture Terminals. One program includes typical job tracking and time reporting transactions of a sheet metal factory. It is an adaptation for the 2647A of the HP 3000 "CAPTURE" demo announced in the Aug. 1, '79, CS Newsletter (p. 38). The second program is a time reporting application that adapts itself to any of the data capture terminals (3075/3076/3077).

These demos are particularly good because the hardware and equipment involved is easily transportable. (Try taking an HP 3000 to a customer site to demo.) They are very useful for customer demos and shows and for general hands-on experience and familiarity with the data capture products.

The first of these programs illustrates some typical applications involving time reporting and tracking lots of sheet metal through their fabrication. As part of the demonstration, mark sense cards (printed on an HP line printer) are used as tracking cards for lots of sheet metal. Prompting lights guide the user to enter the tracking card and to enter the lots' location, flow and status in the fabrication cycle. Deviation from the expected flow results in immediate feedback to the user. In addition, use is made of the thermal printer to print a routing slip when material leaves one fabrication station in transit to another. Work-in-progress status is continually updated on the 2647 display.

The second time reporting program adapts itself to the particular data capture terminal that you have, 3075/3076/3077 with any combination of available top options (except CRT). The program reads the 307X status byte and uses either the 3077A clock or the 2647 internal clock (if using 3075A/3076A) to welcome people ("GOOD MORNING", "GOOD AFTERNOON", or "GOOD EVENING") who "clock in" by feeding their Type III or Type V badge into the reader (MFR or Type V reader). We thank *Annamarie Golaris* in Rolling Meadows who, for a data capture show in February, wrote the program upon which this one was based.

Get your copy of these two great demo programs and the necessary cards and badges, by sending a blank tape cassette to *Rene Feitelson* at DTD Cupertino—Bldg. 43U.

HP 2647A Program Tape #2

By: Peter Taylor/DTD

2647A PROGRAM TAPE #2			INSTRUCTIONS
FINANCIAL		LINEAR ALGEBRA	<ol style="list-style-type: none"> The number of the program corresponds to the file number the program is at. Find the file of the program you wish. Type in 'get', press carriage return. Program will now load. Type in 'run', press carriage return. Program will now execute.
3	Remaining Balance on a Loan	18 Linear Programming	
4	Term of a Loan	19 Matrix Addition, Subtraction and Scalar Multiplication	
5	Annual Interest Rate on a Loan	20 Matrix Multiplication	
6	Mortgage Amortization	21 Matrix Inversion	
STATISTICAL		GENERAL	
7	Permutations and Combinations	22 Greatest Common Denominator	
8	Mann-Whitney U Test	23 *Numerical Integration	
9	Mean, Var & Std.Dev.	24 *Coordinate Plot	
10	Geometric Mean & Dev.	25 Roots of Quadratic Equations	
TRIGONOMETRIC		MULTIPLLOT PAPER ADVANCE	<p>NOTES</p> <p>A * Indicates optional graphics output to screen or plotter.</p> <p>These programs are not supported by Hewlett-Packard. They can be used as programming examples for individual purposes. The results obtained by these programs are deemed to be correct but are not guaranteed.</p>
11	Trig Polynomial	26 Real Roots of Polynomials	
12	Parts of a Triangle	27 Directions for Use	
13	Analysis of 2 Vectors	28 *Pie Charts	
14	Operations on 2 Vectors	29 *Bar Charts	
15	Angle Conversion: Radians to Degrees	30 *Linear Charts	
16	Degrees to Radians		
17	Coordinate Conversion		

The field response to the HP 2647A Program Tape was so great we've developed yet another tape for your 2647A software collection.

The 2647A program tape #2 is now available. It includes financial and statistical programs which demonstrate the terminals strength in business applications. It also contains programs which do matrix manipulations and solve trigonometric functions for the scientific marketplace.

Also, if you've been looking for a way to demo the HP 9872S this tape provides the answer. Just fill out the form opposite

and send it with a cartridge tape to *Brenda Greeley*. (Remember European requests go to Grenoble.)

Enclosed is my cartridge tape. Please send me my copy of 2647A Program Tape #2.

Name: _____

Office: _____



Send European requests to Grenoble.

The HP 2647 Driving HP 2645's on a Daisy Chain Multipoint Line

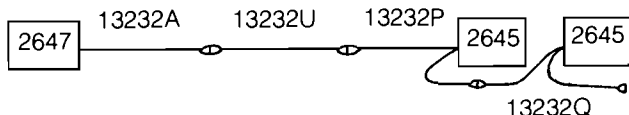
By: Jean-Louis Chapuis/HPG

We have been asked recently if it is possible to activate the Multipoint Driver Mode of the HP 2647 using a BASIC Program. Though the 2647 is not intended to be a Multipoint Controller, you can take advantage of the program described here to make a nice demo or a self-study exercise on Multipoint data communications.

Using the Driver Mode on a 2645A or 2647A is fairly easy; you type DVR-XXXX, press ENTER, and then CONTROL DISPLAY function. Now if you want to perform this sequence using a BASIC Program, you get a problem when you want to simulate the "ENTER" key. The program listed shows you one way to do it (if you find another, please contact me!).

- What do you need to run the program?
 - 1 x 2647 with the asynchronous Multipoint I/F
 - 1 x 2645 with the asynchronous Multipoint I/F
 - 4 x cables: 1 x 13232A; 1 x 13232U; 1 x 13232P; 1 x 13232Q

- Set up:



- Terminals Configuration:

2647: Odd Parity, 9600 Bauds
AUTOLINE FEED key UP
REMOTE down

- Keyboard I/F: all switches closed
- Asynchronous Multipoint I/F
Close following switches: J17, J16, J15, J14, J13, J12, J07, J05, J04, J03, J02, A4, 2SB, all the other switches are open.

2645's: Odd Parity, 9600 Bauds
AUTOLINE FEED and REMOTE keys down.

- Keyboard I/F: all switches closed.
- Asynchronous Multipoint I/F:
Close following switches: J16, J17, J15, J14, J13, J12,
J11: closed for 1st 2645, open for the 2nd
J10: open for 1st 2645, closed for the 2nd.
Also close: J07, J05, J04, J03, J02, J01, A4, 25B.

- Procedure:

Load the program in the 2647 and run it, you will see data coming from Terminals "AA" and "AB" on your 2647's screen . . . under BASIC Control.

• Program listing:

```

*****
* THIS PROGRAM USES THE MULTIPOINT DRIVER OF THE HP 2647 TO *
* SEND POLL & SELECT SEQUENCES TO SEVERAL 264X'S IN GROUP "A" *
*****

10 DIM A$(80)\ DIM B$(80)
20 ASSIGN "DA" TO #1
30 PRINT #1, "DVR-A"&CHR$(34)&"aA"
40 PRINT CHR$(27)&"y"
50 PRINT CHR$(27)&"Z"
60 PRINT CHR$(27)&"h"&CHR$(27)&"J"
70 INPUT #1;A$
80 PRINT "A$= ";A$
90 B$="THANK YOU"
100 GETDCM ON
110 FOR I=1 TO LEN(B$)
120 J=GETDCM(S$)
130 NEXT I
140 PRINT #1;B$
150 GOTO 70
160 END

!ASSIGN 1 TO DATACOM LINE
!CALL THE DRIVER MODE
!START IT
!TURN OFF DISPLAY FUNCTION
!CLEAR THE 2647 DISPLAY
!INPUT THE DATA COMING FROM GROUP "A"
!PRINT IT ON SCREEN
!MESSAGE FOR TERMINAL "AA"
!MAKE A DUMMY READ TO CLEAR THE BUFFER

!SEND THE MESSAGE TO TERMINAL "AA"
!LOOP AGAIN
    
```

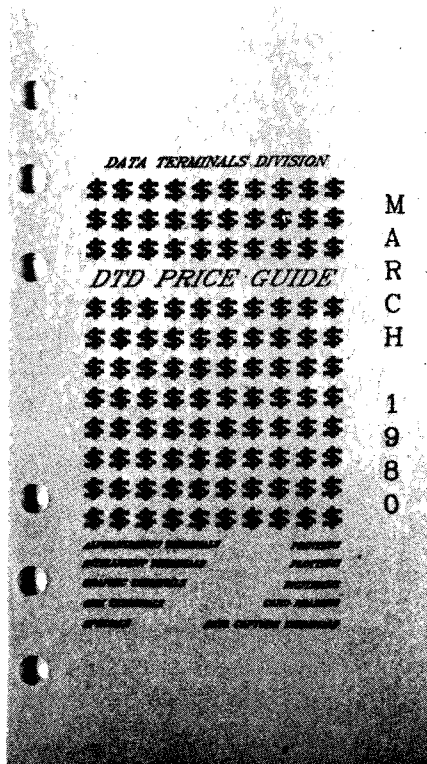
Important: To modify the polling rate you can modify the contents of the RAM location FE8E hexadecimal (177216 Octal). It is an 8-bit value from 1 and 377 octal, which represents the binary value of the number to multiply to 40 msec to obtain the polling rate.

If you type in: E_c&c 177216aXXXD, where XXX = 004, you will have one poll every 4 x 40 ms = 160 ms. The best way to do it is to add a line to the program:

```
65 PRINT "Ec&c 177216a004D"
```

New DTD Price Guide

By: Eric Grandjean/DTD



A new March '80 edition of the DTD Price Guide is presently being distributed through the "MAILS" system. It's reduced format will allow you to carry it in your pocket or purse or even insert it in one of the other division's mini binders. Look for the blue cover in your basket for the latest terminals and other terminal subsystems components made by Boise, Grenoble, San Diego and Fort Collins Divisions.

The guide also contains information on documentation, supplies and the all important factory contact people—that's us in Sales Development.

If you need more price guides for order processing people or new CSG colleagues, contact Tokyo, Grenoble or Cupertino where an additional supply will be maintained.

GENERAL SYSTEMS NEWS

Division News

GSD Hosts HP 250 OEM Conference

By: Bea Smith/GSD



HP 250 OEMs conferred with HP and with one another during meetings and informal sessions for two days at GSD.

On Feb 28-29, GSD's Business Systems Program hosted a highly successful meeting of 70 North American and ICON OEMs, representing 49 companies. The HP 250 OEMs' first gathering was held at GSD.

A large percentage of the OEMs invited, attended the standing-room-only event. It offered the opportunity to meet each other, to compare notes on business development, and to make plans to form an OEM association.

BSP's objective was to show HP's commitment to the OEMs and to help them find ways to maximize their business. The theme of the meeting was "Productivity". BSP's first year with the HP 250 focused on selling to OEMs. This year's emphasis is on helping them become more productive.

On the first day, attendees discussed: Merchandising for the Small Business Market; Selling in your Target Market; Building your Organization; and Support for the End User.

Bob Beth, matrix, Granby Hillyer, Energy Automation, and Allen Starzyk, C.I.S., were kick-off speakers. Carl Penrod, Neely-Fullerton and Lou Stover, Neely-Englewood, spoke about utilizing HP third party specialists.

The group met the BSP Management team, saw an OM/250 demo, and received awards engraved 'The Winning Team — The HP 250 and You'.

On the second day, the group established a committee to investigate organization as a separate group or as a subgroup of the GSD Users Group.

Finally BSP Product Management presented the NPT. Many late-stayers watched a demo of FIN/250 and expressed considerable excitement over the package.

The general conference tone was one of enthusiasm for HP and the HP 250 in particular.

Product News

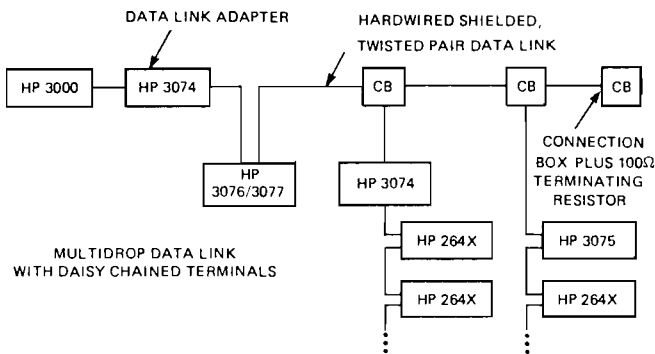
MTS/3000 Enhancements Now Available

By: Ron Fountain/GSD

In September, several significant enhancements to MTS/3000 were announced. The release of the 1918+Datacomm MIT now makes these enhancements available to you and your customers. With these enhancements not only have the performance and reliability of MTS/3000 been improved, but MTS/3000's potential market has been expanded through the wider range of applications and environments which are now supported. Specifically, these enhancements are:

- The HP Data Link terminal connection mode is now supported. This provides a lower cost alternative for configuring hardwired multipoint terminals. In addition, the data link's high noise immunity is particularly well suited for manufacturing environments.
- HP 3075, 3076, and 3077 factory data collection terminals are now supported with MTS/3000. In addition, they can be mixed with 264X terminals on the same line, giving MTS/3000 the flexibility needed for a complete multipoint

factory solution. The diagram below represents just one of the possible configurations now available to your multipoint users. Additional examples may be found in the MTS/3000 Reference Manual and the HP 3000 Price Configuration Guide).



- The System Manager has much more control over the operating characteristics of MTS/3000. For example, the System Manager can now control the order and frequency in which each terminal or group of terminals is polled, thus providing the ability to prioritize applications or users on the line.

- The diagnostic program MPTTEST has been greatly expanded to perform a thorough test of the multipoint configuration and terminals. This will assist in diagnosing errors in line configuration before they become service problems.
- The impact of non-responding or busy terminals on the rest of the terminals on the line has been greatly reduced. By automatically removing non-responding terminals from the poll list (removal time adjustable from 1 second to 8 hours), MTS/3000 now prevents the tying up of the communication line.

As you can see, significant strides have been taken which improve the performance, reliability, and marketability of MTS/3000. Multipoint communication is (and has been for some time) the standard method of connecting block mode terminals in the commercial environment. MTS/3000 is thus a major element in the HP 3000's terminal communication strategy.

Remember, MTS/3000 can offer significant advantages over point-to-point communication both in terms of cost savings (multiple terminals sharing a single communication line) and in system performance (increased error detection and 9600 baud operation). When appropriately capitalized on, these advantages offer HP 3000 users the optimal terminal connection technique for their block mode applications.

Newsweek Cites HP 3000 as 'Counterinflationary'

By: Rich Edwards/GSD

HP's long-range plan to lower the cost of computing. It's working.

In 1974, Hewlett-Packard introduced the first in a line of general purpose computers that would remain compatible with our next generation systems. And the next.

Today, the three members of the present HP 3000 family cost less than the HP 3000 of five years ago. (And if you have an earlier model, we can easily upgrade it for you to perform on a par with our latest computers.)

Lowering the boom on software costs.

Hardware prices keep coming down. But software costs keep going up, and they're going to take a larger and larger bite out of your future EDP budget. Fortunately, we can help you reverse this spiral.

Within the HP 3000 business computer family, you can use the same operating systems, the same five languages, and the same links for building distributed networks.

Suppose your EDP staff writes a program to run on our largest system in your central office. You also want to use it on a smaller HP 3000 in an office half way across the country. Instead of spending months adapting the

program, you can simply transmit the same software by phone to the smaller system. And you're off and running.

Not only is your valuable application software transferable between HP 3000s, you'll be able to run it on future family members. So you won't get stuck with obsolete programs on your hands.

Making management information more manageable.

One of our earliest goals was to develop data base management software that wouldn't be outdated by hardware changes in the HP 3000 family.

The result: IMAGE/3000, an award-winning system that puts pertinent information right at your

fingertips. Simple English-like inquiries let you call up precise data on a video terminal or print out a concise report.

This capability, a virtually indispensable management tool, has been available on every HP 3000 since 1974. In fact, it was the first data base management program you could get on a small computer. And today, literally thousands of HP systems are making use of IMAGE.

A family that communicates easily.

This is the key to the distributed processing environment of the 80's. Information in all your computers, from small dedicated systems

to the larger general purpose processors, should be accessible to various levels of management. At the touch of a few keys. And without costly programming.

That's why we developed DS/3000, a simple link between our computers that lets you use the data and capabilities of remote systems as if they were in the same room with you.

We've also added links to IBM mainframes. So your people using the HP 3000 can share important data with the central computers.

If you're looking for ways to lower your computing costs and increase productivity at the same time, look at the HP 3000 family of business computers that's been doing both since 1974. And we promise you fast delivery, too. So call your local HP office listed in the White Pages and get a demonstration of real compatibility. Or write for complete information to Hewlett-Packard, Attn: Bob Bond, 11000 Wolfe Road, Dept. 000, Cupertino, CA 95014.

1976: THE HP 3000 SERIES II

1974: THE HP 3000 LX

HEWLETT  PACKARD

1977: THE HP 3000 SERIES I

THE HP 3000 SERIES B3. An excellent answer to local information processing needs, this mid-range system will also communicate with other HP 3000s and remote terminals from \$56,000.

47004HPG-14

1978: THE HP 3000

Series III

HP 3000 Series III

HP 3000 Series III

HP 3000 Series III

HP 3000 Series III

HP 3000 Series III

HP 3000 Series III

HP 3000 Series III

HP 3000 Series III

HP 3000 Series III

HP 3000 Series III

HP 3000 Series III

HP 3000 Series III

HP 3000 Series III

HP 3000 Series III

HP 3000 Series III

The March 3, '80 edition of *Newsweek* carried a story on the impact of inflation on consumers' lives. After examining today's high prices for hamburgers, gasoline and real estate, *Newsweek* went on to point out some counterinflationary products. "... there are still some bargains out there — manufactured goods, commodities and services that for one reason or another have held their price over the past several years or even come down a bit."

You know that the HP 3000 is part of "Hewlett-Packard's long range plan to lower the cost of computing." By taking advantage of advances in technology we have been able to

introduce new HP 3000's with greatly improved performance at a price comparable to or less than that of six years ago. Technology has also been applied to reduce the price paid for the same performance of HP 3000 systems six years ago.

Newsweek in fact mentioned the HP 3000 in its article: "Among manufactured goods, electronic products have the best track record on prices. Four years ago, Hewlett-Packard sold its popular HP 3000 business computer for an average price of \$300,000. Today, the same model is four times as powerful but sells for only half as much."

BEAT INFLATION NOW WITH AN HP 3000!

Software Life Cycle

By: Jutta Kernke/GSD

A Software Life Cycle policy has been developed and approved and accepted by Computer Systems Group. It will be put into immediate use by GSD and DSD

What does this mean? A software product may proceed through the following categories during its life cycle:

- Active
- Mature*
- Inactive
- Obsolete

(* Not implemented by GSD)

To give you an example, DEL/3000 was inactivated in December '78 and will receive support until January '84. During this 5-year period, we do not want to actively sell the product, but make available the right to copy as well as all support and manual update services.

Following is a chart which explains the categories in more detail:

HEWLETT-PACKARD SOFTWARE SUPPORT SUMMARY				
Software Category	Active	Mature	Inactive	Obsolete
Definition	<ul style="list-style-type: none"> • Receives regular software maintenance to: <ul style="list-style-type: none"> - correct known software discrepancies - maintain compatibility with other software products with which it was defined to be compatible when sold • May also receive periodic enhancements 	<ul style="list-style-type: none"> • Receives regular software maintenance to: <ul style="list-style-type: none"> - correct known software discrepancies - maintain compatibility with other software products with which it was defined to be compatible when sold 	<ul style="list-style-type: none"> • Receives software maintenance as necessary to: <ul style="list-style-type: none"> - correct serious software discrepancies - maintain compatibility with other software products with which it was defined to be compatible when sold 	<ul style="list-style-type: none"> • Receives no software maintenance

Continued over.

HEWLETT-PACKARD SOFTWARE SUPPORT SUMMARY				
Software Category	Active	Mature	Inactive	Obsolete
Term	• Indefinite	• Indefinite	• 5 years	• Indefinite
Available for sale	<ul style="list-style-type: none"> • As a 1st time purchase • As a right-to-copy product 	<ul style="list-style-type: none"> • As a 1st time purchase • As a right-to-copy product 	• As a right-to-copy product only	• Available as a special purchase only
Product Content	<ul style="list-style-type: none"> • Provides right to use software on one computer, and delivery of software and manuals (and firmware if part of the product). • Provides the right to copy the software onto one additional computer system, and delivery of manual plus firmware if part of the product 			• Special: mag tape containing S/W and copy of Ref. Manual
Customer Training Availability	Regularly scheduled courses are available for most active software products	Request-scheduled only	Request-scheduled only	Not available
Software Support Services (CSS, SSS)	Available for all active, mature, and inactive software products			Not available
Computer Support Service (CSS) content	Right to use software updates and applicable firmware updates; Delivery of Software Updates and Firmware Updates; Reference Manual updates; Account Responsible Systems Engineer; Phone-in consulting service; On-site Systems Engineering assistance; Software Status Bulletin; Software problem reporting; Communicator			Not available
Software Subscription Service (SSS) content	Right to use software updates and applicable firmware updates on one system; Delivery of software updates and firmware updates; Reference manual updates; Software Status bulletin; Software problem reporting through the mail; Communicator			Not available
Documentation Distribution Services (SNS, MUS)	Available for all active, mature, and inactive software products			Not available
Software Notification Service (SNS) content	Provides information on software updates, outstanding software problems, and resolutions, and new programming techniques			Not available
Manual Update Service (MUS) content	Provides periodic manual updates to keep additional manual sets for HP software products up-to-date			Not available

Applications

HP 300 Tracks Job Applicants

By: Bob Ashford/GSD

GSD Personnel is very excited about its own 'departmental' computer, an HP 300 used for college recruiting.

The computer's mission is to:

- Maintain records on more than 1,000 resumes that GSD will receive in the course of the college recruiting season;
- Report on the status of individual applicants;
- Produce statistical reports showing offer/visit and hire/offer ratios, as well as affirmative action data for the different programs and functional areas;

- Allow users to extract data on subsets of the applicant population; and to
- Generate individualized offer and reject letters.

According to data entry personnel, it's much easier now to produce statistics quickly and accurately than it was with a manual system.

Among future applications for the HP 300 that *Ed Estes*, Personnel's programmer/analyst, foresees are the generation of EEO reports required by government agencies, monitoring of wage and salary administration and programs to facilitate the scheduling of training classes.

Ed has given several impressive customer demos and is currently working on documentation. An added plus to *Ed's* system is that he uses the Qume Sprint 55 printer (about \$2,000) to write all his letters.

When scheduling customer visits, ask about a demo!!

HP 300 Positions Graphics House for Growth

By: *Bea Smith/GSD*

What do you do if your business has been growing at 30% a year for the past seven years and shows no signs of slowing? What you cannot do, according to *David Blacher* of PAS Graphics is continue handling accounting functions on a tub-file, ledger card system, consuming eight hours a day plus overtime.

When PAS Graphics, a large Pasadena graphics and art supply retailer, decided to computerize, their first step was to get a consultant's advice on analyzing computer purchase decisions. Then, they defined their needs — one of which was a computer which could grow and a computer company able to support a long-term relationship.

After evaluating five companies, *David Blacher* chose the HP 300. It was not the least expensive system he evaluated, but *Blacher* chose it "because our search was not based on price, but on value. And we felt that the state-of-the-art the HP 300 represented was indeed a value. It allows us to grow."

Alan Stewart of Automation Consultants, Intl., was engaged to convert software for PAS Graphic's 300. *Stewart*, an HP 300 OEM, has provided GSD valuable marketing and technical inputs which have helped in positioning the HP 300 in the marketplace. In creating the package for PAS, *Stewart* was able to utilize a good bit of RPG code formerly running on an IBM System 32/34, enhancing it by using FORMS/300 and KSAM.

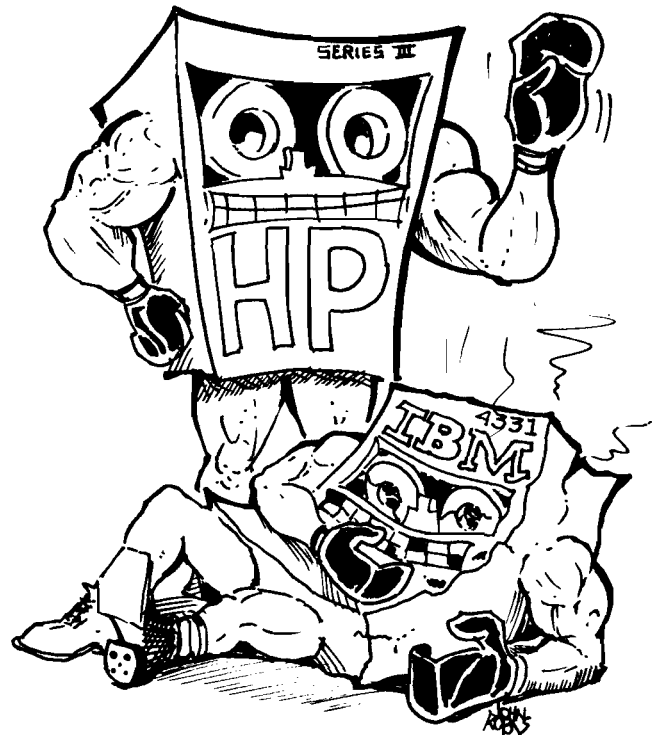
Function by function, the HP 300 is replacing PAS Graphics' manual system. In the future, sales analysis will be added and a terminal will go in at another store location.

Congratulations to *Carl Penrod* (Neely-Fullerton) and to PAS Graphics and Automation Consultants on a very successful first installation in Los Angeles.

Competition

HP 3000 Wins Against IBM 4331

By: *Pete Sinclair/GSD*



Recently one of our major accounts decided to compare their HP 3000 Series III's to some of our competitor's models for future system orders. The competition was narrowed to HP and the IBM 4331. IBM tried very hard to win this sale. In fact, IBM installed an actual loaner 4331 next to an HP Series III in the customer's computer room. The stage was set for the ultimate competition between the two machines: side by side benchmarks.

The results of the first tests were not encouraging. The customer was running short COBOL simulation programs and the IBM 4331 apparently had four times the performance of the Series III! But, after following the guidelines given in the IBM Benchmark Results Management Report recently distributed to all Sales and SE DM's (examining the IBM job stream, blocking factors, etc.), we discovered that IBM was using both different parameter cards and blocking factors than was HP. By making these changes in our programs, we were able to quadruple the performance on the Series III, bringing it well within 80% of the performance of the 4331.

Considering that the Series III's cost of ownership is more than 40% less than the 4331, this performance difference was regarded as strongly favoring HP on a price/performance basis.

Following the benchmark guidelines given in the IBM 4331 Report, we recommended that the customer run one of their actual applications on both machines to get a fair comparison of their relative performance levels. The customer chose the AMAPS package that they had purchased from a software house and which was already running on their HP 3000's. Despite extensive IBM help, the customer was unable to get the package up and running on the 4331 in more than a month of trying!

The net: IBM has been asked to remove their 4331 from the customer's computer room by the end of the week. Future system needs of this customer (10-20 systems per year) may now be satisfied with the HP 3000 Series III.

Note of encouragement from above: During a recent storm, the roof over the customer's computer room began to leak . . . but only on the 4331, not on the Series III next to it! We are now looking into making this a standard system feature.

Training News

HP 3000 Customer Training Course Maintenance Schedule

By: Carol Ramsay/GSD

Are the courses you are teaching up to date? Check that you have the most current overhead slides, student workbooks, course tapes and instructor guides. The following HP 3000 customer training courses are currently being updated or revised:

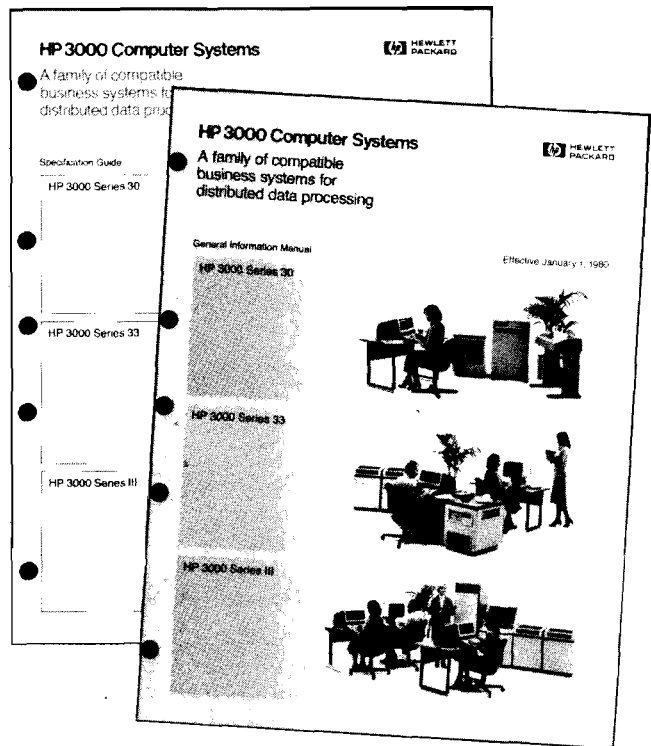
- 22801B — A Programmer's Introduction
3rd edition currently available
Update #1 available April
- 22956B — IMAGE Database Management
Update #2 currently available (Feb. '80)
- 22830A — V/3000
2nd edition available March 24

As updates to courses are scheduled, details will appear in this newsletter.

Sales Aids

HP 3000 GIM is Now Two Books

By: Rich Edwards/GSD



The HP 3000 General Information Manual (GIM) has been reprinted and is now in stock. What's new? The GIM is now available in two "halves".

Book one is the textual description of the HP 3000, transaction processing, data communications, MPE and system architecture. This is titled HP 3000 "General Information Manual" and is available free as P/N 5953-0589 or for purchase as 30000-90008 (dated 1/80).

The second book is "new" in that it is a repackaging of the data sheets and technical appendices of the former GIM. Titled the HP 3000 "Specification Guide," it has a new P/N, 5953-0588 and is a free piece of sales literature.

Use these manuals during the sales process with the technical specifier of the HP 3000 system. While both the GIM and Specification Guide are available as free sales literature (in addition, the GIM is a manual for sale), they are not literature designed for bulk mailing or mass distribution.

HP GRENOBLE NEWS

Product News

HP 3070B Fire Sale

By: Muriel Jean/HPG

When the following article appeared in the Feb. 15 '80 issue of the CS Newsletter, the model number of the equipment was accidentally omitted . . . It is 3070B.

A great savings on the following used equipment (Opt 888)
Serial Nos. 1814F00115, 1814F00116, 1814F00118,

1815F00130, 1825F00159 and 1839F00203 is available at \$1750 each but *without warranty*. Availability: approx. 2 weeks ARO.

Call *Muriel Jean* (ext. 221) for transmitting instructions or *Guenter Kloepper* at DTD for North American deals. Units are available on a first-come, first-served basis!

VANCOUVER DIVISION NEWS

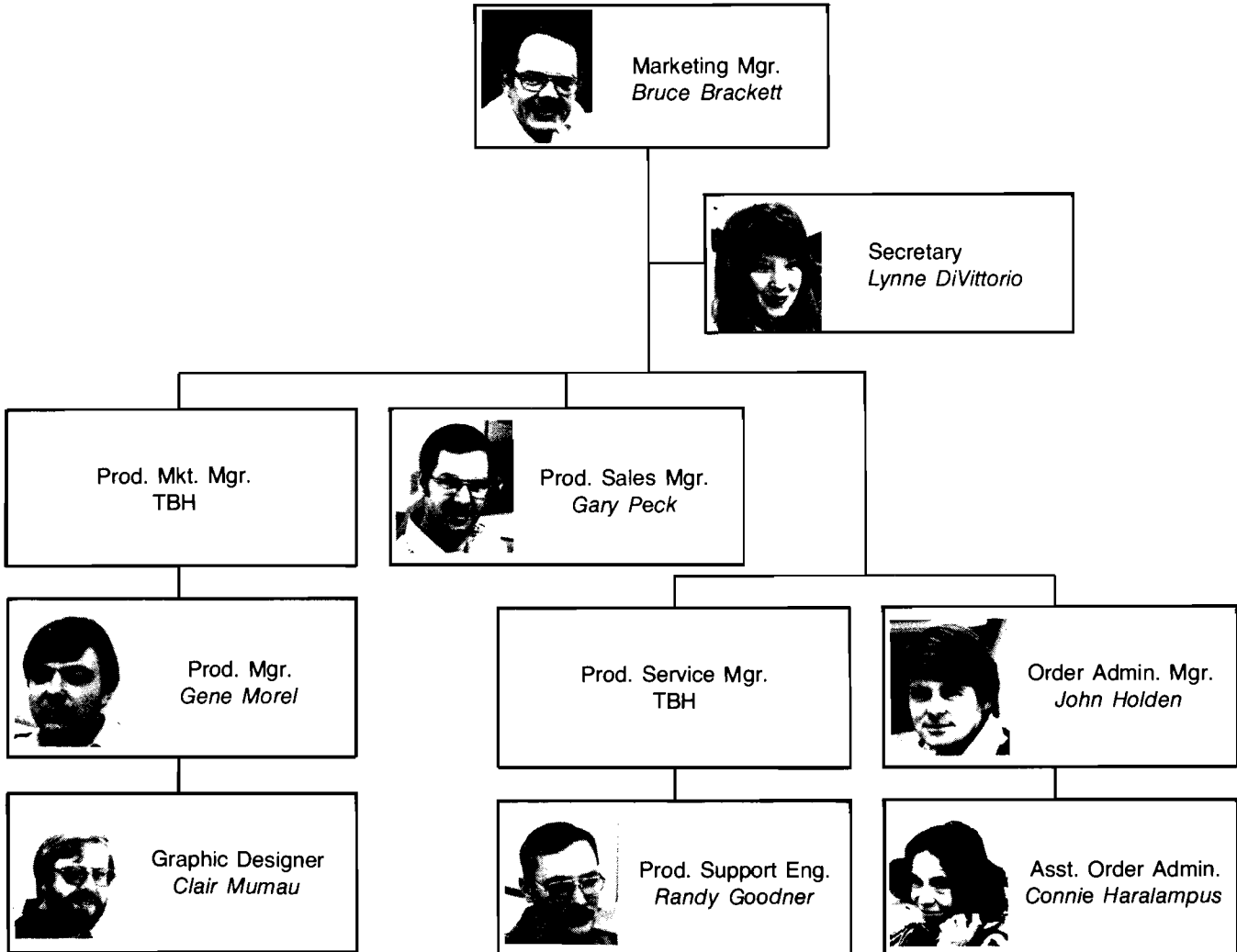
Division News

Introducing VCD's Marketing Team

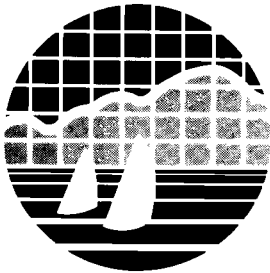
By: Gary Peck/VCD

Where is the Vancouver Division located? In the State of Washington just across the Columbia River from Portland, Oregon, but *not* in Vancouver, B.C., the recipient of many errant phone calls.

Utilize our resources and get to know us. We welcome your calls. (206) 699-4535.



CS GROUP NEWS



**San Diego
Division**

Product News

"PLOTTER IS" and the HP 9872S Graphics Plotter

By: Cindi Lund/SDD

The PLOTTER IS statement on the HP 9835/9845 desktop computers will perform a full-page advance on the HP 9872S plotter each time the statement is executed. This is because AGL defines the PLOTTER IS statement to prepare the graphics device for the upcoming plot. This includes clearing the CRT screen and advancing paper on the HP 9872S plotter.

Customers may feel that advancing a blank sheet of paper is wasteful, but for truly unattended operation, one cannot assume the HP 9872S plotter to have a blank sheet of paper on it at the start of the program.

Applications

Plotters for Numerical Control Verification

By: Tom Dalba/SDD

For those of you who thought that a graphics plotter was a product used to mass produce Birthday Plots or HP Sales Dollar pie charts, have we got news for you! Among the many applications of our plotters, Numerical Control (NC) verification is a natural.

In the past, mills, lathes and other machines were operated manually to produce mechanical parts. Now many of these machines are automated, mass producing parts under program control. The NC software company offers software that makes it easy for an NC customer to design a part, using a simple English-like language, and create a paper tape that will control the NC machine. The problem is that the customer prepares a punched tape, runs the tape through the machine to check the finished part, realizes there is an error, and goes through this process several times until the part comes out right. This can be very costly from both a labor and a machine time point of view, especially for a complex part.

This is where NC verification comes in. By using a hardcopy device to view the part during the iterative process, the customer saves time and money

One NC company that provides this service is Weber NC in Milwaukee. Their NC tape preparation and verification system consists of an HP 9835A, a 9885M floppy disc, a 2631G printer, a 9884A paper tape punch, and a 9872B plotter. The customer prepares a program using the easy-to-use geometric language. Using the software developed by Weber, the 9835A drives the 9872B to produce a picture (to the desired scale) of the finished part.

The customer makes corrections and repeats the process until the desired part is produced. At this point, the file is punched out on paper tape or stored on a disk. The file is then fed into the machine and the part is produced. The disk is used to store the software. The printer provides program listings.

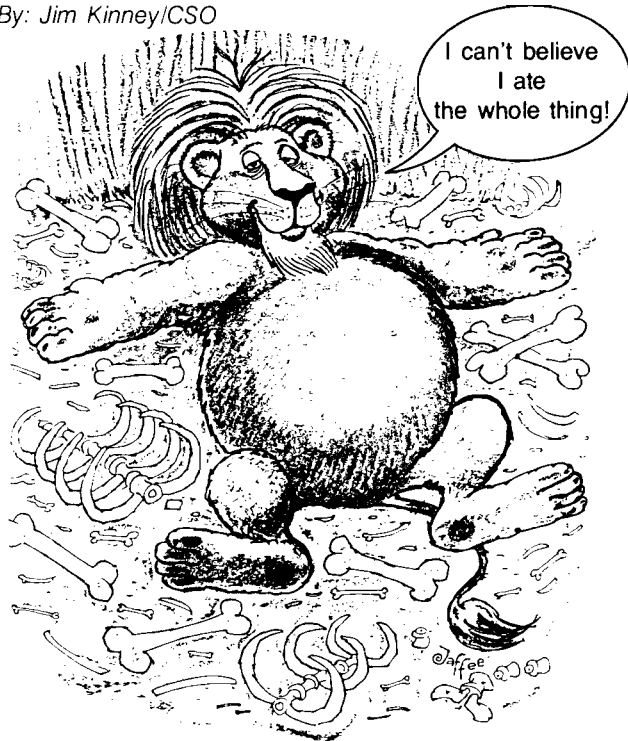
The different pen colors are used to represent different tools. Using this technique the observer can verify, for example, that a hole will be first drilled, then reamed, then tapped. The order is very important.

Dennis DeCoste, who is the SR for Weber NC, says that Weber sees the HP 9872B as a very reliable, high-quality instrument. The intelligence of the 9872B significantly reduces the memory requirements of the software package and also minimizes software development time and cost.

Computer Supplies Operation News

Manuals Move Complete

By: Jim Kinney/CSO



Having digested the lion's share of Computer Group manuals transferred earlier this year, CSO in March finished moving in the Desktop Computer, Grenoble and Boise Division manuals.

Now located in our supplies distribution center are all current Computer Group Manuals — over 2,500 different kinds — (previously located at Corporate Parts Center). CSO supplies manuals for customer trade orders and field office internal orders. Please note, we *do not* stock or supply training manuals, kits, student materials or software, nor do we supply manuals for training courses. These items must still be ordered through the appropriate division and SEO/CEO training channels.

Our COMSYS/HEART address is **2268** (Supplier Code 2268, Product Line 68). Remember when ordering for training needs from Data Systems Division to override HEART with location **2200**. This will help keep your important training orders separate from regular manual orders.

If you have any questions or need assistance, give us a call at (408) 738-8858 — we won't take your problems "lion" down. We're roarin' to go!

COMPUTER SYSTEMS NEWSLETTER

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