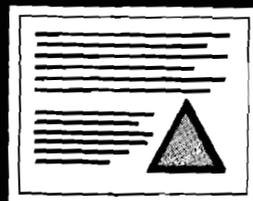
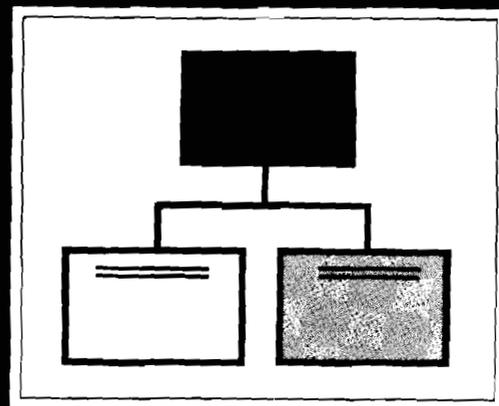
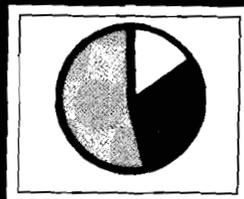
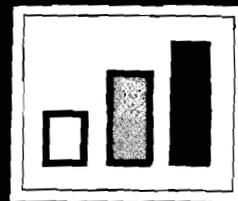


# Computer News

For HP Field Personnel  
July 1, 1982

**Integrated Information  
Management . . .  
Words, Data, Graphics**



**HP 3000 Business Graphics Package  
The Competitive Edge**

For Internal Use Only

CMG	Computer Marketing Group
CMG/3PP	Computer Marketing Group Third Party Program
CSD	Computer Support Division
CSO	Computer Supplies Operation
SRO	Systems Re-Marketing Operation
TG	Technical Computer Group
DSD	Data Systems Division
RVD	Roseville Division
YCD	Yokogawa Computer Division
DCD	Desktop Computer Division
BDSD	Boeblingen Desktop Computer Division
CD	Corvallis Division
PCD	Personal Computing Division
GTSO	Grenoble Technical Systems Operation
BCG	Business Computer Group
BCG/AS	Business Computer Group/ Application Systems
CS	Computer Systems Division
FSO	Financial Systems Operation
IND	Information Networks Division
MSO	Manufacturing Systems Operation
CS-P	Commercial Systems Pinewood
BSG	Boeblingen General Systems Division
DTD	Data Terminals Division
GS	General Systems Division
G	Grenoble Division
CPG	Computer Peripherals Group
B	Boise Division
CSIG	Colorado Springs Instrument Group
DM	Disc Memory Division
G	Greeley Division
SDIG	San Diego Division Instrument Group
V	Vancouver Division

Computer Marketing

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### On the Cover:

*IND's new HP 3000 Business Graphics Package includes HPEASYCHART, HPDRAW, and HP DSG/3000. Graphic results can be merged with text using the HP 2680 Laser Printing System. See article beginning on page 23.*



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

**For research and education purposes only.**

## CMG

### July 1 Purchase Agreement Discount Changes to A-6 Exhibits

Joe Rodgers/CMG

Effective July 1, 1982 a revision to the A-6 will specify that the three disc drives (HP7908P, 7911P, and 7912P) will receive the same discount as the 250 series system under the following conditions:

"Buyer may order only one of the System Disc Drives listed above which are ordered and coordinated with each model HP 250 Series ordered from this exhibit".

This change will require some special administrative procedures to be followed in order to qualify for this higher discount. In order to establish the qualified orders from the non-qualified orders for disc drives we are requiring that each order be *coordinated* in order to receive the higher discount. The "No partial" field must be coded "6" on the HP order.

This means that any customer who already has either a disc drive on order or a 250 system on order who wishes to qualify for this new program discount would need to have his order changed accordingly to add the additional equipment and have it coded as coordinated in order to qualify. That is, a disc order would require that a system be added to it and a system order would require a disc drive be added in order to qualify.

Customers who have neither a disc or computer system on order would qualify by entering a new order for the combination on a coordinated delivery basis. Only the first disc on the order would qualify.

This higher discount would be granted as long as the order is coordinated but should the order be changed to a partial delivery basis, the order would be changed to show that a lower discount would apply to the disc drive. Change orders and cancellations will be subject to our standard marketing policies.

## 3PP

### New OEM Capabilities Guide

Roger LeMay/CMG



The first edition of the new *OEM Capabilities Guide* has been completed and will be distributed in July. This unique catalog describes hardware and software solutions marketed by independent Value-Added System Suppliers (OEMs) that utilize HP computer products. Copies have been mailed to SRs throughout North America as well as all US and Canadian OEMs that submitted data collection forms prior to June 1. Although not all inclusive, this first edition contains information on over 150 companies and 275 application products.

The Guide is intended to serve several functions. First, it is a resource document for the HP sales force. If

an end-user sales rep determines that an OEM solution is the best way to meet a prospect's requirements, he or she should discuss the appropriate disposition of the lead with a third party rep in their local office. Information on how to contact the various OEM companies can then be provided to the prospective customer. This process is intended to provide some prospect leads for HP OEMs to insure that HP is afforded the opportunity to make an equipment sale even where we cannot offer the solution directly. This also makes OEM products more visible outside of their local areas.

The second function of the Guide is to make the solutions of OEMs more visible to the entire Value-Added System Supplier community. Companies interested in cross-licensing their software are identified in the catalog. Cross-licensing can be an additional source of revenue at little or no cost to the OEM, as well as allowing for increased efficiency in a firm's own program development efforts.

The Guide (and the associated data base) also provides HP management with current information on the products and capabilities of our OEMs. As the catalog is updated and revised, this information will become increasingly useful for planning new programs to help OEMs be successful.

CMG plans to publish updated editions of the catalog frequently and expand it to include OEMs in ICON and Europe in the near future. If you are responsible for supporting an OEM that would like to have its products included in this catalog, or your OEM would like to update its current product descriptions, you can get additional data collection kits by sending a request via Comgram to Cheryl Downey at COMSYS 0000. We are certain you will find this new catalog a valuable resource and an effective and almost effortless way to locate OEM solutions

## Introducing the Value-Added System Supplier Insignia for OEMs

Sheri Godshall/CMG



We have received many requests from OEMs that want to use HP's trademark in their advertising. To meet this need, CMG is introducing the Value-Added System Supplier (VASS) insignia, which HP OEMs can use in their brochure advertising and direct mail. The Value Added System Supplier insignia is part of a program that allows third parties to use the HP logo. Other groups have also developed their own insignias: for instance, Personal Computation is using a "Personal Computation Dealer" insignia.

CMG will announce the new insignia in the US trade press in early July, and US OEMs can begin using the insignia as soon as they sign the new Value-Added System Supplier Identity Program Agreement, which is an amendment to the OEM contract.

The VASS insignia shows an OEM's association with Hewlett-Packard, and should carry with it HP's reputation for product quality and reliability, providing a "door-opener" to OEMs in their marketing efforts.

Because there is no industry standard term that completely and accurately defines the contribution of OEMs, we developed the term "Value-Added System Supplier." "System Supplier" explains the solutions-oriented applications that OEMs provide, and "Value-Added" recognizes the added contribution of hardware and/or software value to

the system. It also differentiates the added value that OEMs provide in their distribution channel from the role played by HP in providing systems and software.

The article in the June 1982 issue of *Datamation*, "In Search of Value-Added," further defines value-added and describes the shift in added value from hardware to "the fuzzy area between standard software, custom software, and service and support."

SRs are responsible for getting their OEMs to sign the Value-Added System Supplier Identity Program Agreement. Bulk copies of this agreement were distributed to the contracts administrator in each sales office in mid-June (P/N 5953-2230(00)D).

After the OEM has signed the agreement, the SR can provide the OEM with: copies of the insignia; the Style, Format and Use Guidelines; and the one-page handout, "What is a Value-Added System Supplier?" This explanation of the role of a Value-Added System Supplier can be used by OEMs to explain their association with Hewlett-Packard to potential customers.

The following materials will be distributed to US SRs by the end of June:

Literature	P/N
VASS Insignias (ready for printing)	5953-2248
Style, Format and Use Guidelines	5953-2249
Handout: What is a Value-Added System Supplier?	5953-2250

In addition, an eight-page merchandising handbook, the "HP Third Party Merchandising Guide" will be mailed to SRs in July (P/N 5953-2242). The VASS insignia will be introduced in Canada later this year.

## CSD

### Short Form CSSA for Workstation Products

Larry Johnson/CSD

The new short form version of the *Computer Support Services Agreement (CSSA)* contract is now available for use in ordering either software or hardware support services for workstation products. Systems Information Service (SIS), Field Repair Center Monthly Maintenance Charge (FMMC), and Product Monthly Maintenance Charge (PMMC) can now be easily ordered for Desktop, Series 80, and HP 125 computers using this new form.

This single page document is used in lieu of the three separate documents for the more complex and larger systems. The short form CSSA contains: applicable Ts & Cs, support product descriptions (exhibits), and an ordering form.

Just have your customers fill out the single form, and that's all! Your Service Coordinator and PO does all the rest. The short form CSSA is written in a less threatening style which will be less frightening to your smaller accounts. It orders the services in one year increments only, so both your PO and your customer's purchasing department will save much time and effort. For ease of ordering, the order form can be processed with or without a PO. Your customers can either enclose a check with the order or have HP send an invoice. Once you have a signed order, you also have the contract and exhibit. No more chasing and coordinating.

There are two very similar but separate short form contracts:

- To order Software Support (SIS)
- To order Hardware Support (FMMC or PMMC).

A set of these contracts will be shipped with each HP 125 and Series 80 computer going to US customers and will be sent to desktop computer customers who return the literature request cards, starting in June. This will help remind your customers of the benefits and availability of HP support services on their new computer. They will also serve to introduce dealer customers to the benefits of support services from HP.

These short form contracts will be part of a merchandising package that will also include a Support Planning Guide and a Price and Availability Guide plus instructions on filling out the order form and ordering the services.

## System Support Price Changes

*Judy Hayner/CSD*

Effective July 1, 1982, there will be some price increases in the Systems Support Product Line (59). These increases will bring support prices in line with rising costs. To briefly summarize, adjustments have been made to the contractual support prices for the following:

- Selected subsystems on the 1000 and 3000
- Fundamental Operating Software (FOS) on the 3000 Series 30 and 44
- Applications on the 3000 (MM and PM)
- Tape cartridge options (022) on the 3000 FOS
- Minicartridge options (020) on the 1000

For both the 1000 and 3000, the overall effect of these changes on the average customer's total support costs will be less than 10%.

In the customer training area, a consistent pricing policy has been used

to implement price changes for all *on-site* training courses.

For consulting, the hourly rate for Systems Engineering assistance has been increased by approximately 5%, from \$95 to \$100. The daily rate is also increasing, from \$675 to \$750, in both cases to cover associated costs. The consulting rates for specialists will remain unchanged.

A complete list of these price changes appears in the price change section of this issue. The same list has also been distributed with a descriptive memo to all SE Managers and SEAs. Please direct any questions to the CSD Sales Development Group.

## Three-Month Introductory Offer of Software Support

*Larry Johnson/CSD*

Effective June 15, HP is offering Software Support on all Series 80 and HP 125 Personal Computers on a 3-month, introductory basis.

HP is making this offer to increase the competitive edge of its Personal Computers, and to introduce the benefits of the industry's only Systems Information Service (SIS). This offer is being made on all Series 80s and 125s sold either by HP or by authorized HP dealers in the US.

Customers will receive a brochure with their new Series 80 or 125 that explains this offer. To participate, customers need only complete the tear-out card and mail it to the closest HP Area Office listed in the brochure. The area SEA will reply with a "welcome letter" which includes the PICS number. The introductory software support commences with HP's receipt of the registration card and lasts until the end of the hardware warranty period.

The support coverage for the introductory offer is the same as the base level of SIS support on the customer's system. Customers can upgrade their 3-month free coverage to a higher level by purchasing a 1-year contract of higher level SIS (I/O SIS on Series 80, Program Development SIS on the 125) along with its prerequisites.

Moreover, customers will have full access to PICS as they would with SIS. Plus, they will receive the latest issue of the COMMUNICATOR and the SOFTWARE STATUS BULLETIN with their computer.

Training is not a requirement for the introductory offer, but it is strongly recommended, as it will help your customers derive more benefits from both their new HP computer and software support.

We have a unique sales opportunity which should generate additional computer sales. Once your customers have tried the service, I am confident they will come to appreciate the benefits of SIS and sign up for a full 1-year contract.

# CSO

## Workstation Furniture for Europe

*Susan Bryant/BGD*



HP's European customers can now choose from two types of furniture when outfitting their interactive office. The 92212 series of ergonomic

furniture and accessories now supplements the 92210 line, which is featured in the current *Computer Users Catalog*.

Fully adjustable terminal tables featuring both tilt and swivel capabilities headline the 92212 ergonomic line. With these new tables, people of nearly any size, shape or height can find their own optimal position for comfortably working on a terminal keyboard and CRT. A wide array of accessories, such as palm rests and swivel plates, add to the convenience, comfort and productivity of HP terminal users.

All components of the 92212 line meet HP industrial design standards and match HP computer equipment colors. The terminal tables meet German Industrial Safety Standards and the German Printing Union has recommended the printer stands.

You will receive a sample copy of a new 92212 Series furniture brochure this summer.

For more information on the European furniture line contact Susan Bryant at BGD, B200.

## SRO

### Credits Available Beyond System Minimum

Russ McBrien/SRO

When configuring your system upgrade, be sure to include all the credits your customer is eligible to receive. This will make your upgrade sale even easier. Here is a guide to the equipment which is included in your minimum credit and must be returned. Accessories beyond these base sets may also be eligible for additional return credits\*.

#### Upgrades from the Series III

The base return credit requires return of the following items:

Qty.	Description	P/N
1	Series Mainframe	32435A/B
1	ATC	30032B
1	M/T Controller	30215A
1	256Kb Memory Board	30008A

#### Upgrades from the Series 30/33

The base return credit requires return of the following items:

Qty.	Description	P/N
1	Series 30/33	32412A/B/C 32430A/B/C
1	2649E System Console	2649E
2	128Kb Memory Board	30078A

#### Upgrades from the 7920S/M or 7925S/M

The base return credit requires return of the following items:

Qty.	Description	P/N
1	Disc Drive and Enclosure	7920S/M** 7925S/M**
1	Disc Pack Cables	13394A 13356A

\*Up to system configuration maximums.

\*\*Master disc drive credits include credit for controller.

If you have any questions regarding credit eligibility, call SRO Sales Development at 408-738-8858.

### Success with HP Series IIIIR

Hal Eubanks/SRO

Leverage off the existing equipment and reduce the initial cash outlay — in two separate sales opportunities last month, Udaya Chandara used

this formula to sell 2 Series IIIIR systems!

One customer, a local Service Bureau, has a Series III system and requires more processing capacity to meet future growth needs. After reviewing the alternatives available to them, HP allowed the customer to:

- Utilize existing peripherals
- Reduce initial start-up costs
- Allow for system redundancy
- Purchase a system that is eligible for future upgrade credits

The second sales success was with an electronics company. A similar scenario existed where the customer required additional performance, and was sensitive to price. The Series IIIIR was again selected. A proven system, the Series IIIIR provided the performance and compatibility the customer desired with their existing Series I system.

### Proven Reliability Sells HP 3000 Series IIIIRs

Andy Tasnady/SRO

One of the major reasons customers cite when choosing HP 3000 Series IIIIRs is proven performance and reliability. This tremendous reputation is ensured with the continued expertise of customer engineers on the Series III/IIIIR products.

Hardware training on the HP 3000 Series IIIIR will continue with ongoing Customer Engineer classes on the HP 3000 Series III/IIIIR. The CE233A HP 3000 Series III/IIIIR class is currently scheduled through FY'83! No plans exist to stop any hardware training on the HP 3000 Series III/IIIIR (low-costs). This ensures the continued smooth installation and servicing of HP 3000 Series IIIIRs. 

## DSD

### Corrections to Hardware Data Book

*Jim Pinsky/DSD*

The new HP 1000 M/E/F-Series Hardware Data book (5953-2832) contains the following errors, which should be noted in your reference copy.

On page 4-1, the chart in the lower right hand corner lists 1.25Mb as the maximum configuration available with power fail recovery system, using 10 12747H boards. The maximum configuration is 1Mb using eight 12747H boards.

On page 4-6, the center left-hand chart lists 1Mb with eight 12747H boards and two 12780H boards as the maximum configuration in a computer with power fail recovery system. The maximum configuration is 768Kb using six 12747H boards.

Also on page 4-6 at the bottom, 2102H standby and operating current requirements are listed as 0.8A; they are 0.64A.

### E/F CPU Loader ROM Change

*Jim Pinsky/DSD*

Starting June 1, 1982, all E/F-Series CPUs are being shipped with the 2645 loader ROM, saving many customers \$105. The paper tape loader ROM, which was shipped with the E/F CPUs, will no longer be included. E/F-Series customers who need the paper tape loader ROM must now order the 12992K (\$105) with their CPU. Note the 2645 loader ROM will reside in address 00 instead of address 01. This change does not apply to the M-Series CPU.

### East-West Cooperation Pays Off

*Frank Jackson/DSD*

Two HP SRs recently won orders for 19 HP 1000 (A600) systems. Congratulations to Tom Hart (Santa Barbara) and Tor Vatne (Piscataway) for winning in this very difficult sales situation, and taking the order away from the Massachusetts competition.

#### The Application

Control and monitoring of a Satellite Transmission Network, which is used for collecting real-time data from 17 earth based stations. Each earth station will consist of an HP 1000 Model 6, as an administrative computer, and a 9845T desktop computer for instrumentation control. Two additional Model 16s, with 512Kb of memory, 7908 Discs, 9872C Plotters, 2601A Printers, 2623A and 2635B Terminals complete the system and act as the Network Control Centers. The overall system is used by a leading financial newspaper for the transmission of daily news articles.

The SRs had to work with both the end user on the East Coast and the OEM on the West Coast. Working with two different customers, separated by such a great distance and time difference, really presented problems for the HP sales team.

#### What Won the Order for HP?

- Perseverance in solving the problems created by the separation of the customers.
- Excellent communication and cooperation between the SRs involved.
- Consistent presentations on both the East and West coasts on the proposed HP solution and HP policies.
- Last, but not least, the price and performance of the HP 1000 A-Series versus the competition.

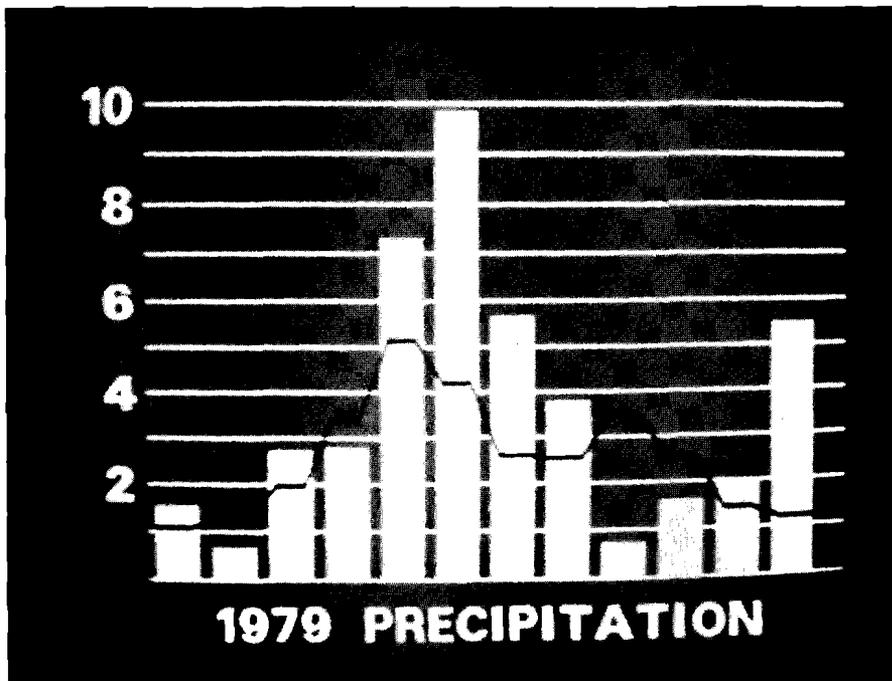
### HP L-Series Model 5 Aids in TV Weather Forecasting

*By Linda Haar/DSD*

Using L-Series Model 5s to generate weather maps? That's precisely what is happening at WBNS-TV in Columbus, OH, WJLA-TV in Washington, DC, and WXYZ-TV in Southfield, MI.

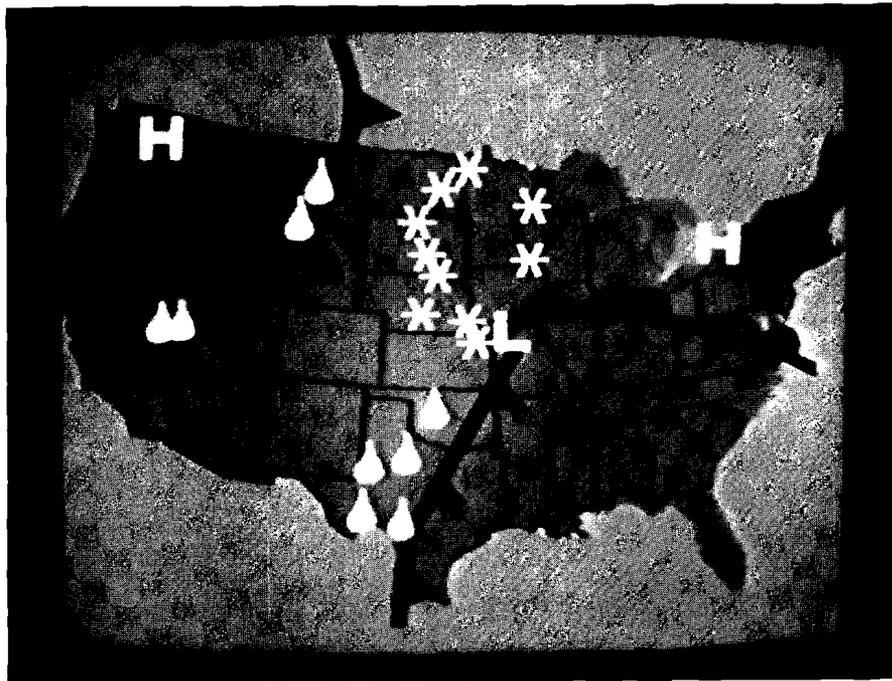
These three news stations use the GRAPHICS System sold by McInnis-Skinner & Associates, an OEM in Oklahoma City, OK. The WEATHERGRAPHICS system was designed to relieve TV weathercasters of many of the tedious details of weather forecasting, such as creating wall maps from weather reports. With WEATHERGRAPHICS, a weathercaster simply has to input certain parameters such as location, information needed, etc., and a map is generated on a multicolor graphical display. Information can be manually added to the map through the keyboard or an HP 9111A digitizer. The weathercaster can also generate, if desired, graphs and charts showing rainfall trend analysis, for example. An additional benefit is that the system can be used to "build" a weather map before the viewers' eyes, giving an animated effect not found in many TV weather reports.

The WEATHERGRAPHICS system can receive weather information in three ways. First, it can receive alphanumeric data from an HP 1000 computer at Weatherscan International, another company based in Oklahoma City. At Weatherscan International, the computer keeps updated weather information based on reports from the FAA "604" Aviation Circuit. The WEATHERGRAPHICS system can also receive digitized satellite maps from the Environmental Satellite Data Corp. based in Maryland. Finally, information can be input manually.



The graphics is output via a high resolution graphics subsystem, which is interfaced to the Model 5 via a 16-bit parallel interface. Originally, McInnis-Skinner & Associates used the 2142A for its WEATHER-GRAPHICS system, but now plans to provide a hard disc-based system, based on the Model 5 with an HP 7908. The company is pleased with the L-Series, and reports their first installations (now numbering five) have been highly successful. They expect the volume of sales to grow quite rapidly, and they will be upgrading to the A-Series for future installations. The key to success, they feel, is a low-cost, stand-alone system which relieves weathercasters of the details of weather forecasting, while providing some attractive graphical displays. Another success story for the HP 1000 Model 5!

If you would like any more information on this system, please feel free to contact Mike Slaby in the Oklahoma City office.



## RVD

### Strain Without Pain

Duncan Campbell/RVD

### HP 1000 A-Series to HP 3000 Computer Interfaces

Mark Fogerty/RVD

Two new interfaces from Roseville appearing for the first time on the July CPL will be used for linking HP 1000 XL, A600, A700 processors with HP 3000 computers. These microprocessor-based interfaces are used with DS/1000-IV software (91750A/R) from IND.

#### Features

- Synchronous full/half duplex modem or direct connect available
- Microprocessor offloads CPU of communications overhead
- 16Kb of RAM for on-board message buffering
- Firmware controlled automatic power-up self test

- Data rates to 57.6K bps
- Hardwired distances up to 1Km
- Modem version compatible with CCITT V.24, V.28, and EIA RS-323-C/449.

Product data information is available in the *A600/A700 Computational Products Technical Data Book* (P/N 5953-2898) from DSD.

Extension cables for the 12082A are available as 91712A, 91713A, and 91714A products.

The 12082A cable mates with a 3000 cable that must be purchased from IND. For a 3000 series 30/33/40/41/64, this cable is a 30221F.

#### Ordering Information

Product	Description	US List Price
12073A	L/A-Series BSC <i>modem</i> I/F card 5 meter RS-232-C cable Self-test hood Manuals	\$2205
+Opt 001	One set updated firmware EPROMS	-1785
+Opt 002	L/A-Series BSC <i>modem</i> I/F card 5 meter RS-449 <i>cable</i> Self-test hood Manuals	+265
12082A	L/A-Series BSC <i>direct connect</i> I/F card 5 meter <i>direct connect</i> interface cable to a male connector Self-test hood Manuals	2520
+Opt 001	One set updated firmware EPROMS	-2100

You can now special order the 93575V strain gauge which is manufactured by the Specials Engineering Group at DSD. The strain gauge special is a 16-channel assembly that is rack mounted at the screw terminations similar to the HP 2250 thermocouple reference block. The 93575V is connected via a shielded cable to the 25503A or 25504A multiplexers in the 2250. Two channels of the 16-channel assembly are used for reference purposes leaving 14 channels available for strain gauge input. This means that for a 32-channel 25503A multiplexer, we can use 28 channels for strain gauge inputs and 4 channels for reference purposes.

The design of the card is an unbalanced wheatstone bridge circuit similar to Loveland's strain gauge card which has greater sensitivity relative to a 4-wire strain gauge measurement. The 93575V is arranged with two groups of eight channels. The last channel, as mentioned before, is the excitation voltage reference for the previous seven channels. The seven channels share one half bridge which consists of a 500 ohm Matched Resistor Pair. Each channel contains two jumpers that are used to configure that channel for 1/4, 1/2, or full bridge completion. (Please contact Roseville for the accuracy specs of the strain gauge.)

There is an option to select either 120 ohm or 350 ohm gauges. (See ordering information listed below.) Normally, you would bring the 25 kHz power supplied by the 2250 to the regulators on the strain gauge assembly, or, if the customer wants to connect his own external power supply to the 93575V, he can do this

via the connectors offered on the strain gauge assembly. The field wiring connectors themselves allow for special shunting capability for calibration as well.

The DSD Specials Group will provide the documentation, support and delivery of the 93575V. The product as it exists today will be shipped separately to the customer for DSD.

The speed of the system is measured in "loops per second."

PIDs and loops are common to most control problems. A generalized software package that sets up loops, performs PID computations, and monitors alarm status of various process parameters is available on the F Series in RTE-6. It is sold by Scientific Systems Services, Inc., 1135 John Rodes Blvd., P.O. Box 610, Melbourne, Florida, 32901, Telephone 305-725-1300. The package is called J/PICS; ask for Pat Huff.

The combination of the HP 1000 F-Series, the 2250, and J/PICS is a powerful process control contribution. The hardware is cheaper than that supplied by more traditional vendors, the software is faster to set up, more flexible, and easier to use, and the combination provides better control.

If you come across a process control opportunity, Roseville can help — we are learning the business, have sold systems to do control, and are ready and eager to support you. The result is often the sale of multiple 1000s and 2250s, tied together by DS1000/IV.

## Ordering Information

Qty.	Product	Description	Price
1	93575V*	16 ch. strain gauge inputs	\$1500
	or Opt H01	120 ohm resistors	0
	Opt H02	350 ohm resistors	0
*6	93285A	Engineering units for quantity of 1	120/EU
2 or more	93575V*	16 ch. strain gauge inputs	1200
	Opt H01	120 ohm resistors	0
	Opt H02	350 ohm resistors	0

\*4 93285A Engineering units \$120/EU for quantities of 2 or more

## HP 1000 + HP 2250 + J/PICS — A Unique Process Control Contribution

*Paul Accampo/RVD*

When you talk to a customer with a process control problem, he will generally ask for three things: menu-driven set up of control loops, a PID library, and color graphics. HP can now offer all three.

But, you ask, "What is a control loop?", "What is a PID?", and "Why does he need color graphics?" Let's define some terms first.

A typical process is operating a boiler to maintain steam at a constant pressure. This is the controlled variable, and is to be kept constant. Feedwater to the boiler is increased when more pressure is desired and reduced when it exceeds the constant value, called the setpoint. The control loop consists of a pressure sensor, a means to process the data, a valve actuator, and a valve to regulate water flow. Typical processes are governed by second order linear differential equations. The best control

is obtained by adjusting the coefficients of the proportional, integral and differential terms of an equation representing the loop. A "PID algorithm" is thus a software routine which takes in a value from sensors, computes an error signal by subtracting the desired value, and by comparing with previous measurements, derives proportional, integral, and derivative values. Their sum becomes the output to the valve.

A typical process control installation may involve 50 control loops. The sensors are inputs to an HP 2250. 2250 outputs will be connected to various devices which affect control, such as valves, dampers, motors, and pumps. The 2250 will scan all inputs, compute all outputs, and send updated signals to all of the controlled devices. The PID algorithm performs all computation.

## DCD

### Shared Resource Management is Here

Phil Farley/DCD

It's official — Shared Resource Management is on the July 1 CPL! Recall that SRM allows up to 12 HP 9826/36/45s to share the files resident on a common CS-80 disc/tape drive and to spool to a shared printer.

Shared Resource Management provides a closely-coupled, medium performance networking solution for clusters of high-performance 16-bit computers. It's a bridge connecting past, present, and future desktop computers. Ganglia, "... the source or center of power and energy ...", is DCD's first step towards solving the networking and multi-user needs implicit in our MPN strategy.

You should have received a packet of information containing the Sales Training Manual, performance information, pricing, and directions for changing existing 9826/36/45 programs to run on SRM.

Each office has identified, for SDC, individuals who are designated as DCD SE librarians, and those who are to receive new manuals. SDC will send final manuals and software to these individuals early in July, before customers receive any shipments.

We have also sent a COMSYS to all FMMs and DMs with instructions on how to order an SRM for consignment. Those units will ship with final and complete manuals as soon as possible, beginning in early July.

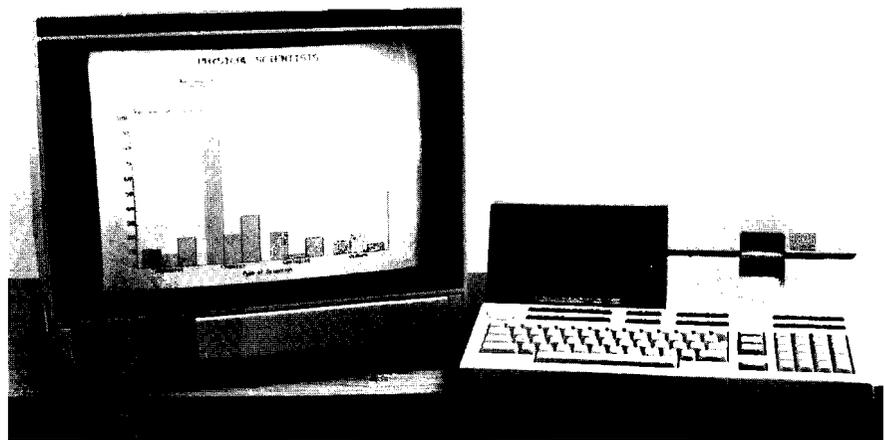
SRM does indeed have the potential for huge sales. You can now sell systems of desktops, as well as singles. Each single user or system can grow to a total of 12 desktops, a CS-80 disc, a line printer, and the

SRM controller. Given a mix of 12 workstations consisting of 9826s, 9836s and 9845s, the potential is

between \$150K and \$500K per system — certainly a rewarding system to sell!

### Another Color Monitor Available for HP 9826/36

Dave Deane/DCD



HP 9826A with CONRAC 19-inch (483mm) monitor

A second monitor manufacturer, CONRAC, has extended a special offer to HP sales offices for demo monitors to use with the HP 98627A Color Video Interface.

During DCD test, the 19-inch CONRAC 7211C19 monitor worked well with the 98627A interface.

CONRAC will sell their 7211 monitor to HP sales offices for \$2723 US, compared with their regular \$3890 for single units — a saving of more than \$1100!

The special price is still higher than Aydin's \$1700 offer for its 19-inch monitor (see details in the May 1 *Computer News*). However, the CONRAC monitor has the advantage of a much wider range of scan rates, and would, therefore, be more likely to work in future configurations. Either brand of monitor performs well with the 98627A interface.

To order a CONRAC demo monitor, specify a model 7211C19 for \$2723, and place the order with:

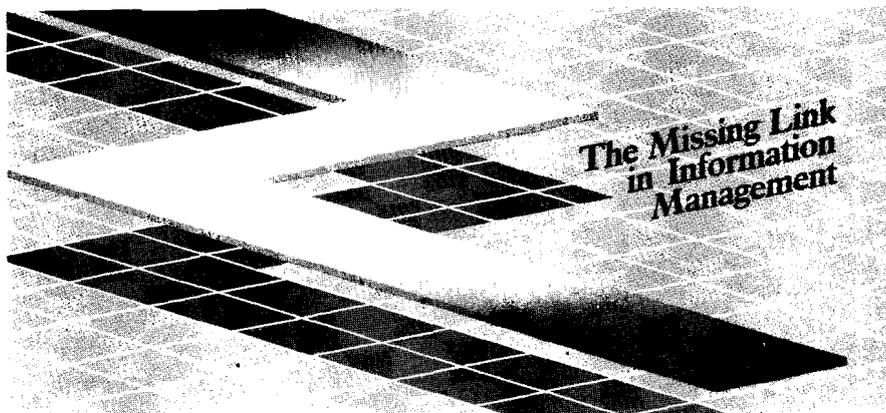
Mr. W. A. Ems  
CONRAC Division  
CONRAC Corporation  
600 North Rimsdale Avenue  
Covina, CA 91722  
Phone: 213-966-3511

Terms are net 30 days, FOB Covina, California.

Mr. Ems has offered to send a complimentary copy of CONRAC's *Raster Graphics Handbook* to anyone in HP. The handbook covers display principles, technologies, graphics controllers and interfaces, and more. It is a good reference and is not a CONRAC promotional piece. If you are interested, send your request on HP letterhead to Mr. Ems at the above address.

## New Shared Resource Management Flyer

Gretchen Tobin/DCD



A new flyer covering the primary benefits of a Shared Resource Management network is now available. This flyer, an entry-level piece designed for direct mail or as a handout, includes promotional copy and enough technical information to qualify a customer.

In addition to discussing the cost savings of shared peripherals, this flyer explains how sharing files from a common disc can streamline

communication within a group and ensure that everyone in the group has the same data. The flyer includes a diagram of an SRM network and describes the hardware supported on the SRM network.

Bulk distributions of the flyer (P/N 5953-4598) will soon arrive at your sales office. You can order additional copies from Dave Asplund at the Corporate Literature Distribution Center, Palo Alto.

## Desktop/Media Compatibility Charts

Kim Boehm/DCD

Media compatibility is confusing because of the number of media formats, utilities that allow reading/writing in more than one format, and machines that support some discs but not others. The following charts clarify some alternatives.

The charts cover computers from the HP-85 to the HP 9836A. They also cover only data/program transfer on floppy media. Later, we will add the HP 1000, some terminals, and tape.

Before using the charts, let's review some related information.

### Formatting

The HP-85 and HP-87 reads/writes in Series 80 Format. There are utilities available, however, that allow the HP-85 to write LIF (Logical Interchange Format) and IBM 3740 format.

The 9825/35/45 reads/writes in DCD Format, also known as 9825/35/45 format. There are also utilities available through an HP PLUS third party that allow reading/writing LIF. The 9835/45 (not 9825) can also read/write IBM 3740 format.

### The 9826/36

In BASIC, the 9826/36 reads/writes LIF. The 9835/45-9826/36 Translator Pack (P/N 09836-10190) includes a utility that will allow the 9826/36 to read but not write IBM 3740 format.

In HPL, you can read/write LIF or the 9825/35/45 format.

In Pascal, which internally has its own format, you can read/write LIF using the LIF filer or LIF procedure library.

### Using the Charts

To use the charts, first choose the chart for the device you will be using (i.e., 9885, 9895, or 82901). For this example, we'll select the 9895.

Next, look at the row listing a computer you currently have, and if appropriate, the language you're using. Suppose you have the 9826 in BASIC.

Finally, look down the columns of the other machines you have and see if it is possible to exchange data. In our example, if you were checking the possibility of writing to a device that uses the 9825/35/45 format (i.e., the 9825/35/45), you would see that it is not possible; you can only read from those machines. If you had been trying to read/write from another device that uses LIF format, you can.

Please note well the following two caveats:

- *Format* compatibility does not imply that your program will run on the second machine after you have transferred it. You must also consider *language* compatibility, and sometimes you must modify the code.
- How similar are the 9826 internal floppies to the 82901 floppies? The 5-1/4 inch discs are completely interchangeable in that they work in either drive, but using

a floppy in a drive other than the one it was initialized on will cause some performance degradation. The 9826/36 internal drive(s) initialize discs at an interleave factor of one (depending on the particular language), which provides the highest performance when reading/writing to a disc. The speed of the 9826/36 disc drive(s) enables the interleave factor of one. The 82901 disc drives are slower, and thus their drives initialize discs at interleave three. The point here is that when a disc initialized in a 9826/36 drive is put in an 82901 drive, it cannot obtain

its highest performance, and vice versa. Also remember that Pascal does not support the 82901 disc drive, so all Pascal work must be done on the 9826/36.

### HP Mini-Winchester Discs

The HP 9134 mini-Winchester drive acts just like one 9895M and three 9895Ss, so use the 9895 chart for 9134 compatibility. The 9135 consists of the 9134 plus an 82901 floppy, so check on both sheets if you're using the 82901 for backup. There is a minor problem with 9825 when it tries to initialize the 9134. It will initialize it, but fill the directory

with nonsense. You can clear this up by invoking a KILL ALL command.

Another frequent inquiry concerns the 9895's ability to read/write on 9885-initialized discs, and vice versa. A simple rule is: single-sided 8-inch media (9885) can be read by either a 9885 or a 9895; however, double-sided 8-inch discs are only supported by the 9895.

Please do not give this information to customers; it is intended for use only as an internal reference. I hope the information helps. If you think something is missing, please let me know at DCD, TELNET 1-226-3330.

## 9895

	Series 80 Format	IBM Format	LIF	9825/35/45 Format also known as DCD Format
HP-85	YES	Yes, with Flexible disc utilities P/N 88095A	Yes, an <i>unsupported</i> utility program is available from Corvallis User's Club P/N 9000049	NO
HP-87	YES	NO	NO	NO
9825A/S/B/T with 98217 ROM	—————→		←————	
9825T with 98228A ROM	NO	NO	NO	YES
9835/45	NO	Yes, need IBM 3740 drivers from DCD. For 9835 — P/N 09835-15230; for 9845 — P/N 09845-10740	Yes, an HP+ listed program is available. See application code 51.21017	YES
9826/36 BASIC	NO	NO	YES	YES HP P/N 09836-10190 (Read only) HP+ 51.21017
HPL	NO	NO	YES When 9826/36 uses MSI "J"	YES When 9826/36 uses MSI "H"
PASCAL	NO	NO	YES When using LIF filer or LIF procedure library	NO

## 9885

	Series 80 Format	IBM Format	LIF	9825/35/45 Format also known as DCD Format
HP-85	HP-85 does not support 9885		NO	
HP-87	HP-87 does not support 9885		NO	
9825A/B/S/T with 98217 ROM	NO		NO	Yes, however disc must be initialized on 9825 to read/write 9835/45 discs.
9825T with 98228 ROM	NO		NO	YES
9835/45	NO	NO	NO	YES
9826/36 BASIC	NO		NO (Planned)	NO (Planned; if 9885 is supported it will work the same as 9895).
HPL	NO		YES When 9826 uses MSI ":G"	YES When 9826 uses MSI ":F"
PASCAL	NO		YES When using LIF filer or LIF procedure library	NO

## 82901 — 5-1/4" Floppy

	Series 80 Format	IBM Format	LIF	9825/35/45 Format also known as DCD Format
HP-85	YES		Yes, an <i>unsupported</i> utility program is available from Corvallis User's Club. P/N 9000049	NO
HP-87	YES		NO	NO
9825A/B/S/T with 98217 ROM			NO	
9825T with 98228 ROM		NO	NO	
9835/45	NO	NO	Yes, an <i>unsupported</i> utility program is available from HP's User's Club which allows LIF ASCII files to be read only on to 9845B tape. Appl. code 63.9526	NO
9826/36 BASIC	NO		YES	
HPL	NO		YES	
PASCAL	NO		NO	

## Sell Quick System Startup for Success

Al Sperry/DCD

You may end up with more than half a million dollars worth of sales by just convincing your customer that HP's desktop computer systems are friendlier and faster to bring on-line than microprocessor-based systems.

That was the case with SR Mal Wiseman of the Rockville, MD, sales office, one of our top ten SF02 salespersons for March, 1982. The March transaction of about \$190K that helped Mal's score involved five HP 9845Cs, which were shipped in an incredible four days after receipt of order! This was part of a contract eventually requiring 20 desktops, which will be used to monitor the status of a large system.

Starting almost two years ago, Mal convinced his government customer that it made more sense to decide on HP desktop computers than it did to base its systems on the LSI-11 microprocessor and a Genisco color terminal.

Here are some of the determinants in the purchase decision:

- The customer needed to learn only one piece of equipment with a desktop-based system, instead of having to learn two pieces (microprocessor and terminal) and develop software using binary code
- Easy demo availability via two 9845s already in another department of the customer's facility
- Availability of 9845 training at HP's Rockville office
- Shorter time to complete developing the application using a desktop.

Cost-effectively allocating the customer's time/money resources can often similarly point to choosing a friendly, integrated desktop compu-

ter over a microprocessor-based system with its complications. The customer just needs your guidance to make the best decision.

# BDD

## HP 9826A/9836A Special Options Available in Europe

Hans Ulrich Reichenbach/BDD



*Karl Grund, BDD Division Manager, showed the first HP 9826A with detached keyboard and enlarged display characters to Doug Chance, Technical Computer Group Manager, during his visit to BDD in March 1982.*

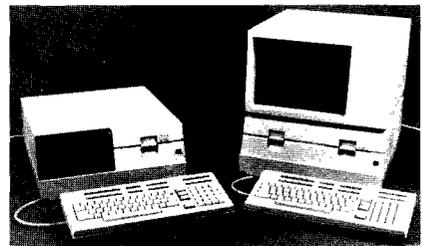
Ergonomics is becoming increasingly important in Europe in the working environment, particularly where computers are concerned. Two of the most critical components in the man/machine interface are the computer keyboard and the display. That's why maximizing user comfort and convenience is so important, and why BDD designed two

new special options for the popular HP 9826/9836 desktop computers:

- Special Option G02 — Detached keyboard for both the 9826 and 9836 (Europe price list only); Price: \$300
- Special Option G26 — Enlarged display characters for the 9826 (Europe price list only), available in standard ASCII, German, French, Spanish, Swedish, and Finnish; Price: no charge.

The detached keyboard for the 9826 and 9836 allows the user to position the keyboard conveniently, install the products according to ergonomic requirements, or put a data tablet directly in front of the display with the keyboard adjacent.

The larger, easy-to-read characters of the 9826 provide a display with a larger character matrix (9 x 6) for enhanced legibility. Because of ergonomics' importance in Europe, these are special European options (G special) only; they will not be placed on the CPL, and will only be offered from BDD. Customers will order the G02 and G26 options by override at BDD. The introduction was on June 1, 1982, and the European field has already been informed.



HP 9826A/9836A

Availability for the two special options is about eight weeks. It is possible to upgrade existing 9826 customer units by installing a new CRT alpha assembly, which will be available from PCE and cost about \$350. The installation should be done by the CEO; the required time is one half hour.

## PCD

### Series 80 Data Comm

Bruce Foster/PCD

Two recently introduced Series 80 products, the 82950A Modem and the 0085-13044 Data Communications Pac, are providing versatile and easy-to-use solutions to many customers' data communications needs. The Modem is the preferred choice for applications where 300 baud is adequate. For data rates up to 9600 baud, the more flexible Data Comm Pac used with a Serial Interface is the answer.

Recently, we have been asked what is meant by "up to 9600 baud" for the Data Communications Pac. Briefly, when strings of data over 1000 bytes long are being sent to the HP-85, it is not possible to sustain data rates of 1200 baud or more. On the HP-87, with its larger memory, this occurs with strings over 8000 bytes. So when the application requires downloading large files of data continuously to an HP-85/87, you should use the lower baud rates. For shorter strings of data, the higher baud rates can be used without problems.

If you have questions about a particular application, your SE or factory sales support person can give you more information.

### muMATH/muSIMP-80 and MILESTONE CP/M® Software for HP-87

Bill Hodges/PCD

muMATH-80 is a fully interactive *Symbolic Math System* that efficiently and accurately performs true algebraic and analytic operations. Symbolic math systems are often called computerized-algebra systems despite their ability to do trigonometric simplification, calculus, and other operations aside from algebra. muMATH-80 keeps track of up to 611 digits, performs matrix operations on arrays, allows you to transpose, multiply, divide, inverse, etc. Complex equations involving logarithmic, exponential, trigonometric and calculus expressions can be *simplified* to solve problems as well as to teach hierarchical structured mathematics. muSIMP-80 is the general-purpose, high-level programming language in which muMATH-80 is written. muSIMP-80 was designed specifically for implementing symbolic and semi-numerical processing using a fast and efficient interpreter.

muMATH/muSIMP-80 can be sold to engineering labs in small and large businesses; universities and colleges in engineering, math and physics; and students and other individuals.

muMATH/muSIMP-80 is available now and may be obtained through software distributors for volume end users in HP-87 CP/M® formatted discs. One such distributor is:

DISCOUNT SOFTWARE  
6520 Selma Ave.  
Suite 309  
Los Angeles, CA 90028  
800-854-2003 Toll Free  
213-837-5141 in California  
Suggested retail: \$250 each

CP/M® is a registered trademark of Digital Research, Inc.

MILESTONE™ (a trademark of Organic Software, Inc.) is a project management and time scheduling product that uses PERT/CPM techniques to increase productivity. PERT (Performance Evaluation and Review Technique) treats projects as a series of events in a time sequence, and is widely used to track project progress. The Critical Path Method (CPM) treats projects as a series of activities and is used in project planning.

MILESTONE is useful for small project management. It helps project leaders clarify the tasks at hand and helps them to communicate schedules and priorities. Small business owners as well as project coordinators in large companies will find MILESTONE extremely useful. A CP/M® System is required. MILESTONE will be available in July, 1982.

### Handheld Data Collection for Surveyors

Tim Mackey/PCD

This concept article will explore the use of HP's 41C handheld computer to collect survey data in the field. It will also describe how to link a 41C to an HP-85 personal computer to plot surveys, print reports, and analyze the data.

### Throw Away Those Clipboards, Papers and Pencils

The biggest advance for surveyors since the invention of the transit is now available. This field data collection system is composed of an HP-41C or CV handheld computer,

an HP-IL interface, and an HP-85 personal computer. Here's how it works:

## Handheld Data Collection with the 41-C

The HP-41C handheld computer is a very powerful tool for portable data collection. With the "CV" version or the "C" version with a "QUAD" memory module, over 250 data points can be stored in memory! The remaining memory registers could easily hold a 41C program which would prompt the surveyor for job number and a transit reading. That means a whole day's surveying (even on different jobs at different locations) could be stored in memory until needed to complete reports, plots and other documentation that surveyors prepare.

## Verifying Data and Field Reports

Let's say you're a surveyor assigned to a very large construction project. You might be at one location for months. Many transit sightings are taken, even multiple times of the same location, to verify squareness of building corners and foundation levelness, etc. The need is to be able to analyze the survey data while you're in the field — or back in the construction trailer. Enter the HP-IL interface and the HP-85 personal computer.

After doing your field work, head back to the trailer to print a report or plot a layout of the data you've collected. Simply plug the HP-IL interface into your 41C and connect it into the HP-85 personal computer. You can now pass the data to the 85 and graph it on the 85's screen, get a copy of the graph on the 85's built-in printer, or simply print out the data to review it for accuracy. Remember, you're not in your down-

town office, hooked up to thousands of dollars worth of computers. You're out in the construction trailer, connected to a \$2,750 personal computer and a \$250 handheld calculator.

## Finished Quality Plots and Reports

Another option to consider is a small portable plotter, like HP's new 7470A. It takes a minimum of counter or desk space and can be configured into your "system" for finished quality multi-color plots of your surveys. Finished reports can be generated using HP's "WRITE/IDEA" software and printed out on the HP-82905 dot matrix printer. And, remember, you are still working out of the trailer with a minimum investment and first-class results.

## Conclusion

Many projects exist on the market today that can increase the productivity of "out-of-office" or "field" related professionals. The 41C and the HP-85, with their ability to "communicate" with each other, will be one of the biggest contributors toward increasing field-to-report productivity to come along in a long time.

*Note:* If you are interested in receiving more information about the 41C handhelds or Series 80 personal computers, please contact:

Marcia Pierce  
Personal Computer Division  
(503) 757-2000  
TELNET 757-3943

# GTO

## Special European Spring Offer

*Alic Rakhmanoff/GTO*

GTO (Grenoble Technical Systems Operation) is offering a 44% discount on HP 2146A and HP 2146B, standard or with Options 011 or 012. Of course, only a limited quantity is available and orders will be accepted on a first-come, first-served basis. No other discounts are applicable to these HP 1000 systems. This offer does not receive functional unit credit toward any purchase agreements.

You should order the HP 1000 Model 10 from GTO (6310) by a COCHISE override (as of May 1, 1982, the 2146A/B is no longer on the CPL).

Your O/P coordinator has received the administrative information from Geneva.

Just to remind you of the prices:

Product/Option	Price
2146B	\$13,650
opt 011	1,785
opt 012	4,200
2146A	14,280
opt 011	1,785
opt 012	4,200

You get a 44% discount on these prices using the Grenoble L-Series coefficient to calculate the local price.

For example, a 2146B with 512Kb memory for \$9,990 instead of \$17,850 or a 2146A for only \$7,990 instead of \$14,280.

Send your orders as soon as possible to GTO. Don't wait, we have only a few units available at this price.



## BCG

### BCG Divisions Announce Next Executive Seminar

Barbara Mandolfo/BCG

The next Executive Seminar on Distributed Processing Systems will be held July 19 and 20 at 19447 Pruneridge Avenue, Cupertino, California.

#### Who Qualifies?

- Fortune 500 Company, Sales in excess of \$400 million
- Two executives (1) the head of the information systems function i.e. Director of MIS and (2) the head of a large organizational unit who has profit-and-loss responsibility, i.e. Division Vice President.

#### Invitations

Will be mailed on June 14 to your office district manager and area manager for distribution. Ask them for your copy.

#### Guest Speakers

Bill Gates, MIS Department Manager of Long's Drugs and Jan Polhemus, Technical Director from Weyerhaeuser.

They will discuss how they have been successful in implementing distributed data processing within their own firms.

#### Seminar Registration

Barbara Mandolfo, BCSC, 4701 Telephone (408) 725-8111, X3046

#### Hotel Registration

Hyatt San Jose at San Jose Airport  
1740 North First Street  
San Jose, CA 95112

Telephone: (408) 298-0300

Toll Free number: (800) 228-9000

Guests should register in the Regency Club. Use Hyatt's Toll Free number if you have questions about accommodations.

## CSY

### Introducing APS/3000

V. Mohan/CSY

Application Program SAMPLER/3000 (APS/3000) is a friendly, interactive, performance measurement software product for tuning application programs on the HP 3000, with the goal of increasing the overall system performance.

APS/3000 helps the programmer to identify CPU bottlenecks in the source code of application programs. APS/3000 does this by monitoring the execution of application programs using a status sampling technique, and producing histograms showing the relative CPU time spent by various portions of the monitored program. Since an application program frequently calls for the services of the operating system such as intrinsics and library calls, APS/3000 reports the CPU time spent in system services as well as the CPU time spent directly in the user code. APS/3000 can monitor the single execution of a program or the multiple execution of shared programs.

APS/3000 can be used either during program development or on existing programs. In a typical application, the user monitors a particular program, studies APS/3000's histograms, and optimizes the code which consumes the most CPU time. This process is repeated until the programmer believes that the software performance is acceptable.

APS/3000 can thus simulate the judgment of an experienced programmer in identifying CPU software bottlenecks, resulting in increased programmer productivity. Although APS/3000 is intended primarily for interactive use, it can also be executed in batch mode. The histograms can be displayed on any HP terminal and a hard copy of the display generated on a line printer for future study.

APS/3000 will be supported on all HP 3000 SPUs running MPE-IV, and on all HP terminals. COBOL II, FORTRAN, PASCAL, BASIC (Compiler) and SPL will support APS/3000.

APS/3000 (32180A) is priced at \$2500 and will be on the July 1 CPL. R & M versions are available and are both priced at \$1250. A full range of software services (T, V, S, Q) will be available. No customer training is required since the product is very easy to learn and use and excellent documentation is provided by the Reference Manual and User Guide (32180-90001), APS/3000 Pocket Card (32180-90002), and APS/3000 Insert for MPE. Software Pocket Guide (32180-90003). A Data Sheet is also available. The product is orderable on July 1 and the availability is contingent on the next release of the MIT: Target date July 1, 1982.

### 256K Configurations for Series 40SX Limited to Eight Terminal Ports

Bob Crum/CSY

A number of questions have recently been raised about the 256K minimum configuration of the Series 40SX, and the number of terminals that can be supported on such a configuration.

Our information and performance testing has always indicated that an HP 3000 system with 256K of main memory could support relatively few terminals. This is due to the excess memory demands that large numbers of terminals place on the system, and the inability of the system to satisfy these demands with 256K of main memory.

In the course of our regular system configuration testing, it has been found that the maximum number of terminal ports that can be configured in the minimum memory Series 40SX system is 8. In our tests the system was configured, brought up and 8 terminal sessions were successfully initiated. This limitation of 8 ports is brought about strictly because of the amount of main memory available, and can be eliminated by adding memory to the system.

Therefore, remember:

*Any Series 40SX configuration of more than 8 terminal ports (two ADCCs) must have at least 512Kb of main memory.*

As the 256K Series 40SX was specifically positioned as a solution for users requiring relatively few terminals, we do not expect this clarification to cause any problems with system sales, nor impact the competitiveness of a system requiring more than 8 terminal ports. Such systems *should* contain more memory!

The Series 40SX offers the smallest initial memory configuration of any HP 3000 system, thus striking the best compromise between minimizing the entry level system price and providing a minimum system that can perform useful work.

One must realize, however, that as the size and capabilities of MPE have grown, the definition of a "useful" minimum system has also changed.

Computer Systems Division has continually done system testing to

ensure the viability of our HP 3000 system configurations, and to be able to specify the performance that could be expected from those configurations under specific circumstances. This performance data, as all of you know, is at best an approximation and will vary according to the customer's workload. The Performance Guide (P/N 5953-7441) presents this data in more detail.

Very important as well is ensuring customer satisfaction by having a correct match between the customer application needs and the hardware configuration sold. It is vital that customer expectations are correctly set about what their computer system will be able to do.

This clarification of the Series 40SX configuration guidelines does not affect any other HP 3000 system, as they all have minimum memory configurations of at least 512Kb. Please make the appropriate additions to your Configuration Guides to avoid any confusion in the future.

If you have any questions, please do not hesitate to contact the Cupertino or Boeblingen Sales Center for assistance.

## New, Lower-cost HP 250 Memory

*Bob Crum/CSY*

With the introduction of new memory boards using 64K RAM technology, and reduction of prices of existing HP 250 memory boards, your customer can now get memory with a savings of up to 58% over the previous memory prices! In addition to these great savings, the standard memory configuration of the 250 has been raised to 256Kb from 192Kb with no change in the system price. This means your customer

gets 64Kb additional memory for no charge!

### *New 256K and 512K memory boards*

These two new memory boards offer a new low in the price of HP 250 memory. By using 64K bit RAM technology, we are now able to offer a 256Kb memory board (45006A) for only \$2500, a savings of 38% over the previous price of two 128Kb boards!

The new 512Kb board is available only as Option 008 to the HP 250 Mainframe (45251B and 45260A). This option will delete the standard 256Kb board and replace it with a 512Kb board for only \$2000! This price for a 512Kb system represents a 58% savings over the previous price of a system with four 128Kb boards.

Both boards are available for use in all 250 systems, with the only restriction being that the 45265A CPU Upgrade Kit must be installed in 250 systems shipped previous to August, 1981. These boards are *not* supported under the old CPU firmware.

Note that the maximum memory size of the 250 remains unchanged at 576Kb, which is 192K of system memory and six user partitions of 64K each. One other point to note is that these new memory boards are configurable in partitions of 64Kb only. For users requiring 32Kb memory partitions, the existing 64K or 128K boards (45003A and 45004A) should be used.

### *Standard configuration for 256Kb*

With the introduction of these new memory products, we are also increasing the standard memory configuration of the 250 system (45251B and 45260A) to 256K (a single 256Kb board) from 192K (a 128K and 64K board) *with no increase in system price!* Remember that this memory board is configurable in 64Kb partitions only,



so the minimum system will now contain 192K of system memory and 64K of user memory in one partition.

For those customers who still wish to use 32Kb memory partitions, the new Option 007 to the 250 system (45251B and 45260A) will delete the single 256K board and replace it with two 128K boards, for an additional \$750. This Option 007 is replacing the previous Option 006, which will be removed from the price list.

*Lower price for 64K and 128K boards*

We are also lowering the price of the existing 64K and 128K boards!

The 64Kb board (45003A) has been lowered to \$1000, a reduction of 33% over the previous price. The 128Kb board (45004A) is now only \$1500, down 25% from its previous price of \$2000!

*New options and lower price to CPU Upgrade Kit*

Reflecting the reduction in price on the 64Kb memory board which is included in the 45265A CPU Upgrade Kit, the price for this upgrade is being reduced to \$1300 from \$1800. Encourage your customers to upgrade and take advantage of the new B.04 features!

In addition, to simplify ordering the new 256Kb memory board when the Upgrade Kit is ordered, a new Option 008 will be added, which replaces the 64K board included with the kit with a new 256K board, for an additional \$2050.

These new memory products reinforce our strategy of significantly increasing our penetration of the small business computer market, by making all memory configurations even more cost-effective.

## Disc Drives Now Get Higher HP 250 Discount

*John Whitesell/CSY*

Effective immediately, the first 7908P/11P/12P disc drive purchased with each HP 250 system now receives the higher Schedule "A" discount (up to 35%) on Exhibit A-6, if the disc drive order is coordinated with the CPU order. This change lowers the price to the OEM by \$1090 (for the 7908P) to \$1700 (for the 7912P), based on the new list prices of these products.

## Expanded Data Communication Options for HP 250

*Bob Crum/CSY*

New Data communications capabilities of the HP 250 allow simultaneous support of up to 10 RS-232C (V.24) asynchronous ports and the DSN/INP.

By designing an external mounting module for the DSN/INP connector panel up to two Asynchronous Serial Interfaces (45120B) can be installed in the 250 back panel. The DSN/INP External Module is joined to the system with a one meter cable, and contains all connectors for the modem cable, test hoods and auto dial cable, while the DSN/INP board itself remains in the system cabinet.

Because of modifications that were necessary for the back panel and DSN/INP cable, this new capability applies only to the 45260A HP 250 system (Models /20, /30, /40 and /50), and *not* to the 45251B desk model. The desk model continues to support either two ASIs or an SI and an INP.

The following chart lists the new options for ordering this expanded capability:

Product/Option	Description	US List Price
45122B	Intelligent Network Processor, DSN/INP	\$2500
001	Include external DSN/INP module.	100
002	Include external DSN/INP module with system back panel upgrade.	195
45120B	Asynchronous Serial Interface for HP 250/30 (45260A).	2205
001	Include external DSN/INP module and cable. Required if this is the second ASI in the system and a DSN/INP is already installed.	275
002	Include external DSN/INP module and cable with system back panel upgrade. Required if this is the second ASI in the system, a DSN/INP is installed and if a system back panel upgrade is required.	370

With the new capability of supporting up to two ASIs and one DSN/INP simultaneously, care must be taken when ordering additional ASIs or a DSN/INP for installed systems.

Specifically, one must be aware of:

- How many ASIs are already present in the system (1 or 2)
- How many INPs are already present (0 or 1)

# Business Computers

- If the system requires a back panel upgrade. A back panel upgrade is required for systems which do not have the appropriate cutout in the back panel for the DSN/INP cable. Consult the new Configuration Guide for more details.

Installed number of:		To add an INP (45122B), order:		To add an ASI (45120B), order:	
ASI	INP	With Old back panel	With New back panel	With Old back panel	With New back panel
1	0	45122B	45122B	45120B	45120B
1	1	N/A*	N/A*	45120B #002	45120B #001
2	0	45122B #002	45122B #001	N/A*	N/A*

\*This configuration is not supported because it would exceed the allowable number of ASIs or DSN/INPs.

Use this new capability to sell to users who have wanted to support greater than five asynchronous terminal ports, and the DSN/INP at the same time. Great for users who

To simplify ordering additional ASIs and DSN/INPs, the following chart can be used to indicate what products and options should be ordered.

wanted five or six 2622D consoles and serial printers and plotters connected, while still having synchronous data communications!

## Lower System Overhead

Previous line printers have accepted data in blocks of 132 bytes or less. Using the CIPER protocol, the 2608S accepts data in blocks of 1Kb which reduces the number of times the SPU is interrupted and has the effect of significantly reducing system overhead. With the same number of printers, less overhead means more processing power.

## Print Job Accounting Capability

When in spooled mode, the 2608S, in concert with the new CIPER protocol, allows accounting by pages printed. This feature, for example, allows service bureaus to bill by the quantity of output.

The new software is a significant advance in printer support providing a more powerful method for system printers to interact with the SPU. Through the more powerful interaction, the system allows better recovery, added data integrity, and user access to printer features. The 2608S with the CIPER protocol is one more system advance that makes HP solutions true system solutions.

## Enhanced Line Printer Support

Ormond Rankin/Boise and Sam Quezada/CSY

The latest version of the Master Installation Tape (MIT C.00.20) provides enhanced line printer support. An integral part of this new software is a newly developed protocol, CIPER — Control for Intelligent Peripherals, which will be used to support the 2608S line printer and will be used for future line printers. This software provides the following benefits:

### Job Separation and Environment Control

This allows users to supply environment information without affecting previous or subsequent print jobs. Environment information could be, for example, character set information (print mode), mode of operation (transparent or feature access), and control information for special forms

(Vertical Forms Control). Using environments, the features provided by the 2608S will be readily accessible to the HP 3000 users.

### Physical Link Independence

Because the printer control codes are contained in the data stream (through escape sequences), control of output remains the same whether you use an HP-IB I/O or a multipoint I/O.

### Auto-recovery After Power Failures

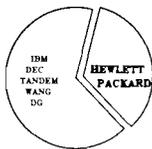
When in spooled mode, CIPER provides the ability for the printer to recover after a power fail with the same environment as originally was loaded. In addition, the recovery automatically starts at the beginning of the last page printed so that no data is lost.

# IND

## Another HP First With New Graphics Packages From IND

Shirish Hardikar/CPS and Marilyn Johnson/IND

DO YOU WANT A BIGGER PIECE OF THE COMPETITIVE PIE?



SELL MORE



WITH

HP 3000 BUSINESS GRAPHICS PACKAGE  
HP 2680 GRAPHICS PACKAGE

On June 15, Information Networks Division introduced new business graphics software products which provide the HP 3000 users with the strongest graphics capabilities of any of HP's competitors today — graphics for the manager, secretary and EDP professional. With these products from IND and new firmware for the HP 2680A Laser Printing System from Boise Division, the HP 3000 now has the capability to integrate the processing of words, data and graphics! Everyone in the customer's organization now has simple access to Integrated Information Management. *No other vendor can offer this today!*

The new HP 3000 Business Graphics Package consists of:

- HPEASYCHART — "No-Experience-Necessary" chart-maker for office users requiring ad hoc charts from manually entered data.

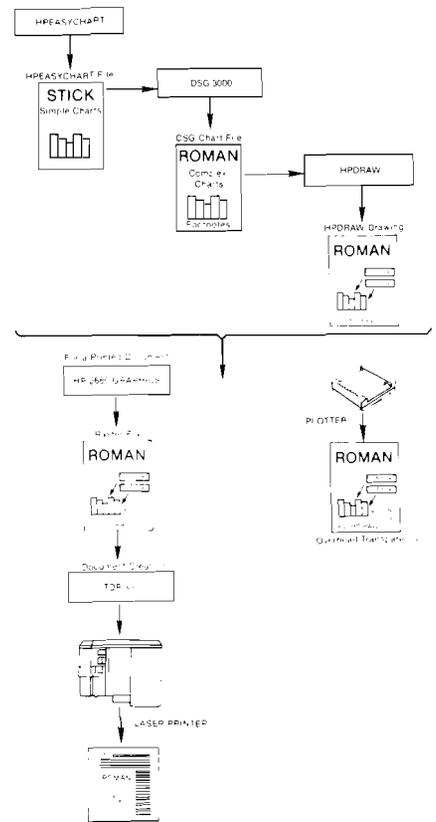
- HPDRAW — Versatile, high-quality visual aid production software utilizing high quality text and figures
- HP DSG/3000 — "Full-capability" chart design and production software — for the more technically sophisticated user requiring periodic generation of charts from data files on the HP 3000.

The new HP 3000 Business Graphics Package will:

- Cut the cost of presentations by reducing the need to use external graphics services
- Cut meeting presentation time with effective graphics for quick visual communication of large amounts of information
- Improve and speed decision-making by better presentations and focusing on the right information with direct access to the latest data.

The new HP 3000 Business Graphics Package is priced to help you:

- Sell more HP systems and peripherals by encouraging multiple HP workstation solutions
- Sell more software by offering a 19% discount on the package (\$10,750 vs. \$13,300 — a savings of \$2,550 on the total price of three graphics products)
- Save your customer money by reducing the need for external graphics services. Your customer can recover the price of HP's graphics software, terminal plus plotter within just two months if he/she has been producing 100 transparencies per month at an average cost of \$100/each.



### Integrated Information Management — How the HP 3000 Business Graphics Package Works

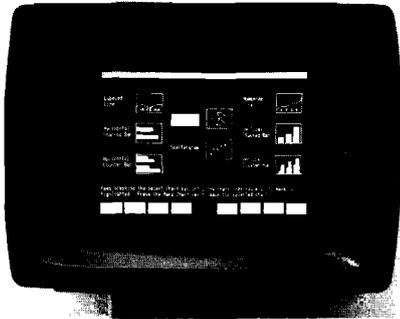
These graphics products work together to give your customers the complete working solution, but . . .

#### These Graphics Products Can Stand Alone, Too!

HPEASYCHART, HPDRAW, and DSG/3000 can be purchased separately as well.

HPEASYCHART (P/N 32109A) is HP's answer to the demand for a product that generates line, bar, pie and scattergrams with ease and simplicity, while maintaining much of the capability of Decision Support Graphics/3000 (DSG/3000). HPEASYCHART allows a novice user to generate a chart by completing only two or three "follow-by-example" menus (Price \$3000).

# Business Computers



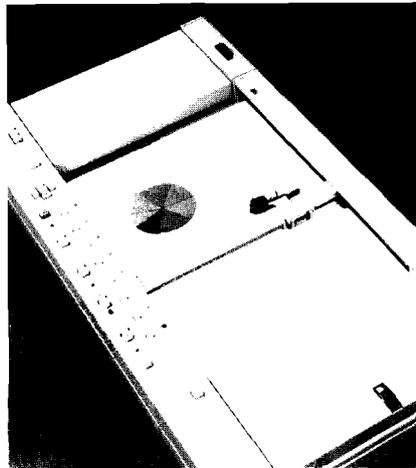
*HPEASYCHART Main Menu*

HPDRAW (P/N 32108A) provides figure design and text capability for the creation of presentation aids. Lines, arcs, circles, arrows, boxes and simple figures can be incorporated for emphasis. Charts produced by HPEASYCHART and DSG/3000 can be directly included in HPDRAW drawings (Price \$4000).



*HPDRAW with the HP 2623A graphics terminal and the HP 7470A plotter*

DSG/3000 (P/N 32250A) has been on the market for almost two years. It provides access to data files on the HP 3000 as well as intrinsics that can be used by programmers to enhance their applications. It is ideal for producing charts that are used on a regular basis since it can automatically update data files while using the same chart. It has been enhanced to allow the use of different character styles, sizes and colors in titles, legends and labels (Price \$6300).



*High-quality, DSG/3000 output on the HP 7221T plotter*

Charts, diagrams and presentation text can be created on paper or overhead transparencies, to interpret data, to help make decisions, and to explain them convincingly. Reams of data can be transformed into concise, readable form. What's more, text, data and graphics can be readily merged for printing on the HP 2680A Laser Printing System.

*No other vendor provides as complete an integration of their products on one system as Hewlett-Packard:*

- Representing data with graphics using HPEASYCHART and DSG/3000
- Merging graphics and text with HPDRAW
- Merging graphics, text and data in a single document for printing on the HP 2680A Laser Printing System
- Sending graphics, text and data in an HPMAIL message
- HP Plotters
- HP Printers
- HP Terminals
- HP Worldwide Support.

Use these strengths against our competitors and reach the "economic buyers" of HP systems. The Integrated Information Management Field Training Manual details information on all these products, the competition, and how they will help you sell HP systems.

*Graphics communicate! Senior management demand and use effective communication methods and tools. They are the "economic buyers" of the HP systems, so lead with HP 3000 Business Graphics ... use it and sell!*

## Sales Aids for Business Graphics Products

*Marilyn Johnson/IND*

The following sales literature and documentation will be available for the new graphics products from IND. The sales literature can be ordered from Literature Distribution in Palo Alto.

### Sales Aids

P/N	Description
5953-7443	HP 3000 Business Graphics Management Brochure — covers HP 3000 business graphics in the organization. 10 pgs. 4-color. (obsoletes Decision Support/3000 Brochure P/N 5953-0598)
5953-7450	HPDRAW Datasheet
5953-7451	HPEASYCHART Datasheet
5953-7453	DSG/3000 Datasheet (obsoletes DSG/3000 Datasheet P/N 5953-0600)

## Documentation

P/N	Description
32108-90001	HPDRAW Reference Guide
32109-90001	HPEASYCHART Reference Guide
32250-90001	DSG/3000 Reference Manual
32250-90002	DSG/3000 Quick Reference Guide

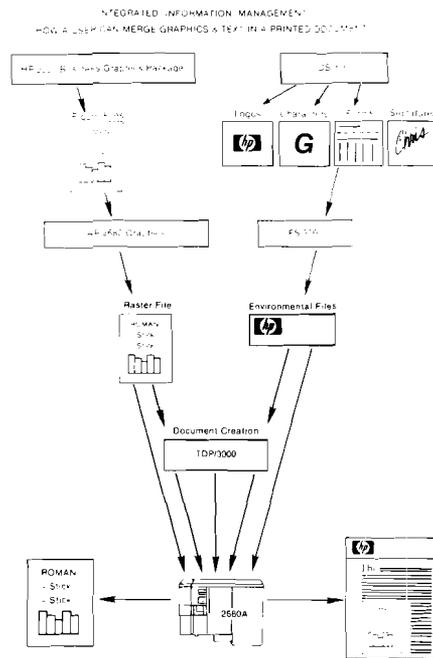
## And Now Graphics on the HP 2680A LPS

Chris Kocher/IND

Your HP 3000 customers can now merge text, data and graphics together and print them on the HP 2680A Laser Printing System. This capability will give you a competitive edge over other vendors, and also present you with some unique sales opportunities.

As you heard on the June 22 Tele-conference and the European NPT, charts and drawings produced by the HP 3000 Graphics Package can be merged with text created by TDP/3000. In order to produce graphics on the HP 2680A Laser Printing System, the following products are required:

- One megabyte of memory for the HP 2680A
- Graphics firmware for the HP 2680A
- HP 2680 Graphics Package Software (P/N 36583A)
- HP 3000 Business Graphics Package Software (P/N 32110A)



Ordering information for those products is described in the *Text and Graphics on the HP 2680 LPS Sales Reference Manual*, the *Integrated Information Management Field Training Manual* and the HP 2680A Laser Printing System data sheet (P/N 5952-9461).

When selling the graphics capability to customers buying a new HP 2680A LPS, you should quote the HP Printer Support Package/3000 (P/N 36584A). This product includes the HP 2680 Graphics Package (P/N 36583A) as well as the previously announced IDS/3000 (P/N 36581A) and IFS/3000 (P/N 36580A) that provide the capability to design forms, logos, characters and signatures. By buying the Printer Support Package/3000, customers will have access to the full feature set of the HP 2680A Laser Printing System as well as saving

20% on the cost of the individual packages. Compare:

IDS/3000 (P/N 36581A)	\$ 4,000
IFS/3000 (P/N 36580A)	2,500
HP 2680 Graphics Package (P/N 36583A)	6,000
<b>Total Price</b>	<b>\$ 12,500</b>
vs.	

HP Printer Support Package/3000 (P/N 36584A)

**Total Price \$ 10,000**

These new and unique capabilities will let you challenge your competitors in tough selling situations as well as attract potential HP 3000 customers. And don't forget, one of the best sales aids is the Print Sample (P/N 5953-7115) that shows graphics and text merged together. If you have questions about these products don't hesitate to contact your regional sales center representative.

## HPTOOLSET — Productivity Tools for COBOL II Programmers

Dick Wong/IND

As of June 22, IND has introduced HPTOOLSET, a powerful productivity aid targeted for the largest community of programmers on the HP 3000 — COBOL programmers.

When used with the COBOL II compiler, HPTOOLSET integrates a number of productivity tools to increase programmers' effectiveness in major areas of program development and maintenance:

# Business Computers

## Full Screen Editor

Full screen editing reduces time and effort in program entry and modification. Programmers can now page through their source code, quickly spot errors and make corrections, all interactively without printed listings.

## Workspace Manager

Programmers spend more time programming instead of managing files. HPTOOLSET's workspace manager manages all source files, versions of source files, \$INCLUDE files, the USL file, and program file.

## COBOL II Interface Program Key

Programmers can compile, prep, and run programs, as well as locate and correct compile time errors, all using screen-labeled function keys. Programmers new to the 3000 can more quickly begin developing COBOL programs without having to learn complex MPE commands. And COBOL II programmers can eliminate much of the time spent managing volumes of printed listings because HPTOOLSET handles their listings online.

## COBOL II Symbolic Debug

COBOL II Symbolic Debug cuts dramatically the time required to locate and correct run time errors during program testing and debugging. Programmers no longer need to specify code locations and memory addresses as required with MPE Debug. Instead, programmers can debug their COBOL programs using the variable names and paragraph names actually used in their programs. The results are error free programs produced faster and with less effort.

This integrated set of tools offered by HPTOOLSET reduces the time, expense, and complexity of COBOL programming for novice programmers to the most experienced COBOL programmers on the 3000.

## When and Where to Sell

All MIS managers interested in improving the productivity of their COBOL programmers will want to learn more about HPTOOLSET. Every new COBOL II compiler sale represents an excellent opportunity to additionally sell HPTOOLSET.

And don't forget your current COBOL customers. COBOL is the predominant programming language used on the HP 3000 and is available on over 50% of all installed systems. The COBOL II compiler has

been enhanced to interface with HPTOOLSET. All COBOL II support customers will automatically receive the enhanced COBOL II compiler at no additional charge. This means that your COBOL II customers can immediately begin realizing the benefits of ease-of-use, productivity gains, and cost savings in their COBOL program development by purchasing HPTOOLSET. Every COBOL/3000 conversion customer also represents a potential HPTOOLSET sale.

In summary, any OEM or end-user doing application development in COBOL is a potential HPTOOLSET user. HPTOOLSET is an integral part of HP's COBOL development environment — no COBOL customer should be without it!

Product No.	Price and Availability	
	Description	Price
32350A	HPTOOLSET Right-to-Use	\$5000
32350M	HPTOOLSET Right-to-Copy	2500
32350R	HPTOOLSET Right-to-Sublicense	2500
32350T	Customer Support Service	95/mo
32350V	CSS for Multiple Sites	20/mo
32350S	Software Subscription Service	25/mo
32350Q	Manual Update Service	3/mo

HPTOOLSET is scheduled to ship in August.



## DTD

### HP 2647A Successful Intro at NCGA

Ed Washington/DTD

On June 14, 1982 the HP 2647F was successfully introduced at the National Computer Graphics Association's 3rd Annual Conference in Anaheim, CA. Virtually all major suppliers of computer graphics hardware, software, and services were represented. The 2647F attracted attention from many conference attendees from both technical and commercial environments.

The 2647F is orderable as of July 1, 1982. Like its predecessor, the HP 2647A, the 2647F is an Intelligent Graphics terminal and is supported by many software packages including:

From HP	From 3rd Parties
VPLUS/3000	TELL-A-GRAPH <sup>®</sup>
DSG/3000	DISPLAY <sup>®</sup>
HPDRAW	DI-3000 <sup>™</sup>
HPEASYCHART	SAS/Graph <sup>™</sup>
GRAPHICS/1000-II	GRAFMAKER <sup>™</sup>

Enhancements over the 2647A include:

- Basic program workspace increased to 64K
- 20% faster processing than 2647A
- 270Kb of storage on mini disc drive
- Optional second mini disc drive
- Graphics keypad doubles as a numeric keypad for fast numerical input.

On June 4, 1982, the sales kit was mailed to 4000 SRs and system engineers worldwide. This kit includes everything needed to get you started on your way selling the 2647F.

### What in the World is an ANSI Terminal?

David Akers/DTD

No, it is not a CRT which is eager to leave your desk! The American National Standards Institute (ANSI) has set down some standards for the escape sequences used with computer peripheral equipment. The Data Terminals Division (DTD) has brought these escape sequences to you!

New from DTD is the HP 2623A, Special Option F07. This Special provides a *dual* mode escape sequence terminal. Using the configuration menu, the operator can select between HP and ANSI mode. In ANSI mode, all the terminal features such as cursor positioning, margins, and graphics control will be controlled by ANSI escape sequences. In HP mode, the terminal operates just like a standard HP 2623A.

Questions? Call Your DTD Sales Development contact for details.

### HP 2621B Goes Canadian

Sarah Jane Militello/DTD

HP Puerto Rico obtained approval from the Canadian Standards Association (C.S.A.) on May 17 to ship the exciting HP 2621B and HP 2629L terminals to Canada.

Shipments to Canada against the order backlog are scheduled to begin at the end of June. Please note that even with the four week delay, the availability for new orders of 2621Bs is substantially lower than 2621A/P terminals.

Any questions regarding particular orders should be directed to Miriam Villanueva at 809-891-5235 ext. 343.

### HP 2624B — A Powerful Data Entry Display Terminal

John Robertson/DTD

The HP 2624B Display Terminal is a powerful terminal that provides many unique features to increase user productivity and, at the same time, decrease datacomm and system overhead.

Local Forms Cache capability allows the system to programmatically download many forms to the terminal at the beginning of a data entry application. This feature not only reduces system and datacomm overhead, but it also improves the response time when transferring forms to the screen.

Advanced edit checks improve data integrity and increase data throughput. The 2624B has 11 unique local edit checks that allow the terminal to detect data entry errors before data is transmitted to the system. In addition, the 2624B provides error messages to notify the user of mistakes. By correcting errors at the terminal, system overhead is reduced.

Another feature unique to the 2624B is the modify data tag. The modify data tag allows the user to send only those fields in a form which have been modified. This powerful feature can greatly reduce datacomm and system overhead.

All of these special features together with the dynamic capabilities and features typical of HP display terminals combine to make the 2624B the ultimate data entry terminal. And remember, the 2624B as a leader in Data Entry Terminals has been proven to be a great door-opener to non-HP customers. Once customers discover the power and versatility of the 2624B, they are sure to consider HP for their total solution.

# Computer Terminals

## Beware of the HP 2621B Cable

Gail Lohse/DTD

If you are unaware that the HP 2621B requires a different cable than the HP 2621A/P then read further. The 2621B uses a completely different cable than the 2621A/P. The 2621B has a 25-pin port on the back panel, whereas the 2621A/P has a 50-pin port on the back panel.

The 2621A/P uses a 13222N/M cable for standard Data Communications (N version for US, M version for Europe). This cable has a 50-pin connector necessary to connect to the back of the 2621A/P.

The 2621B uses a 40242M cable which is a RFI Filtering Modem Cable. This cable has a 25-pin connector on the end to enable it to plug into the back of the 2621B. Plus, in the US you may also use the 13242N cable; however, this cable doesn't have RFI filtering capabilities.

## HP 125 Executive Seminars in the Big Apple

Brian Herzig/Paramus

Over 150 business executives participated in three outstanding HP 125 Executive Seminars held recently in New York. The seminars featured a combination of speaker presentations and live demonstrations of the 125 where customers had a chance to get "hands on" experience with the computer.

The speakers included: Al Gorman, Managing Editor of Datapro, present-

ing a talk on "The Microcomputer Explosion in the Office"; Rich Plourde, National Account Manager from Source Telecomputing Corporation, on "Information/Communications Utilities for the HP 125," and GSD's own Jim Groff, on "The HP 125 as an Executive Workstation."

Following the speakers were several demonstrations of the various areas that the 125 was designed to address. Five 125 units were set up at each seminar to display:

- WORD/125
- GRAPHICS/125

Following the seminar, informal receptions were held at the local of-

ices and thank you letters mailed to the participants.

- VisiCalc<sup>®</sup>/125
- LINK/125
- "The Source" and its many information networks.

While it is too early to judge the actual success of the seminar, several executives have requested that HP SRs contact them regarding multiple 125 acquisitions. Also, the weekly HP 125 "Demo Days" that occur in each of the New York offices have seen a dramatic increase in attendance, thanks mainly to the seminars and the thousands of invitations that were mailed in advance.

## ICON Competes to Sell the HP 125

Mimi Pang/GSD and David Garcia/GSD

Ross Chapman of HP Australia in Melbourne is currently leading the ICON HP 125 sales contest with a total of 27 sales. Not far behind Ross are Lynn Ogilvy of Capetown, South Africa and Healey Blessing of Brisbane, Australia.

The objective of the sales contest is simply to sell the most HP 125s during FY'82. Four winners, one per ICON sales area, will be selected.

Each winner will be flown to the Bay Area for special factory presentations, a dinner with top management and special prizes.

We're looking forward to personally congratulating the winners in November. This is a great opportunity for the top ICON sales performers to receive recognition for their accomplishments.

ICON Area	Name	Quantity
Australia	Ross Chapman (Melbourne)	27
	Healey Blessing (Brisbane)	16
	Derrel Herchenbach (Melbourne)	7
Far East	Vincent Lee (Singapore)	9
	Paul Chan (Singapore)	4
Latin America	Carlos Pares (Venezuela)	9
	Rolfe Stuedemann (Chile)	9
	Yolanda Sandoval (Mexico)	6
	Francisco Diaz (Mexico)	6
South Africa	Lynn Ogilvy (Capetown)	19
	Marius Furst — Johannesburg House Account	13
	Peter Shaw (Johannesburg)	8



## BSE

### Where to Sell HP's New Text and Graphics for the Laser Printer

DeLona Lang Bell/BSE



The computer graphics marketplace is predicted to be a boom market during the 1980's. One study by Frost & Sullivan, NY, predicts that this market will reach \$5.8 billion by 1989—a 15-fold increase that represents an annual increase of 40%.

HP's new text and graphics capabilities for the HP 2680 laser printer make us among the first to address this marketplace. Among potential customers, we have divided this marketplace into three different areas: business graphics, publications, and design graphics.

#### The Business Graphics Marketplace

Many businesses currently use computers to produce their reports and proposals. Up until now, many of these have been entirely composed of text, while some rely heavily on numerical data. Being a leader in

business graphics, Hewlett-Packard has many installed base customers who are currently using our graphics packages. The laser printer's text and graphics capability will be able to leverage off this existing sales base. While it will not typically be enough to justify the purchase of a 2680, the laser printer's ability to print text and graphics will still be very desirable to the business community. In this area, you will be able to continue to sell the 2680 as a line printer replacement, but now with the added plus of graphics capabilities.

#### The Publications Marketplace

This is a large and virtually untapped market. Up to 90% of the accounts you now call on probably have an internal publications department which is a prime application for text and graphics. These departments can realize significant productivity gains by using the 2680 to print manuals and other documentation. Among the benefits to them are:

- easy on-line preparation of text
- editing capabilities which don't require retyping
- reduced printing turnaround time
- inventories which can be stored in mass memory rather than large warehouses
- a reduction in the waste which results from obsoleting printed materials
- ease of merging the graphics with the text portion of the document

Depending on the publication department's needs, you may find it advantageous to include the EDP department's needs in providing a cost justification for the laser printer. However, many publication departments will cost justify the 2680 with their needs alone. It will be helpful to provide print samples of manuals to illustrate to the publications department the quality of 2680-generated manuals.

The laser printer can provide a very cost-effective means of printing documentation, particularly in small quantities. And, documents can be distributed via magnetic tape or with HPMAIL.

#### The Design Graphics Marketplace

Output from computer-aided design systems can be printed on the 2680. The user in this case is an engineering or graphics department. Although this application may not require a dedicated 2680, it can help provide cost-justification when shared with other departments.

Applications for this include the printing of wiring diagrams or schematics, with print quality and turnaround time being the primary benefits. The laser printer can print up to a B-size drawing for this type of application.

#### Potential Customers

Look for customers who are major accounts (which by definition are manufacturing companies). This type of customer generally produces reference manuals, training manuals, and service manuals. Many of them already use text processing, and will recognize the savings which result from electronically preparing documents.

Organizations like the government, which produces large volumes of paperwork and forms, are prime targets for using the laser printer's text and graphics capabilities. Service bureaus, used by companies who don't have the volume or resources to produce the complete job themselves, are another market for this product. Colleges and universities will also have many applications for text and graphics, including the production of proposals.

Some general indicators to look for are companies which have a technical publication department; graphic arts department; mechanical illustrators; print shop; industrial design;

service, training, benefits administration, finance, or marketing department.

Applications for text and graphics include the printing of manuals, proposals, catalogs, price lists, newsletters, scientific reports, org. charts and other business graphics, flowcharts, surveys, government reports, and other type of documentation.

## Introducing the HP 2611A 600 lpm Printer

*Sallie Ewing/BSE*

Boise Division is proud to announce the HP 2611A, a 600 lpm chain-train printer. The 2611A is a "little brother" to the 2619A 1000 lpm printer. It has all of the features of the 2619A except for the built-in vacuum cleaner. These include:

- Chain-train print quality
- Dual (2 sets) motor driven tractors
- 40 inches/second paper slew speed
- Built-in paper alignment guide
- Fully accessible paper path
- Print-one-line button
- Paper-out and paper-jam detection

The 2611A will effectively replace the 2617A. It offers several features, including chain-train print quality and dual tractors, over the 2617A. Reliability is expected to be equal to, or better than, the 2617A. This is reflected in a slightly lower BMMC for the 2611A than the 2617A.

Although the price is the same as the current 2617A (\$18,110), the 2611A is discountable with the system — just like the 2619A is today, under OEM and end-user Schedule B. This

means an effective price reduction for our OEM and VEU accounts.

The 2617A, which is not discountable, will increase in price to \$19,980 on the July 1 price list. We plan to obsolete the 2617A by the end of the fiscal year.

## Special Character Sets Available for HP 2608S

*Jim Skog/BSE*

A kit for designing special character sets for the HP 2608S is now available. This kit includes mark sense cards which are filled out by the customer, then returned to Boise Division where a master PROM is made for the customer's 2608S.

Applications where special character sets are used include symbols for custom design/engineering, national languages, and company logos.

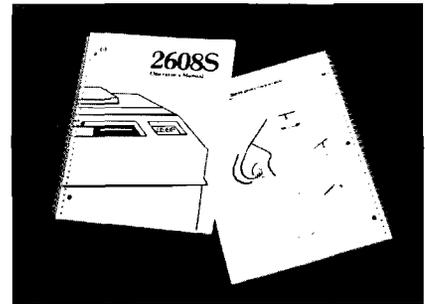
Although a special character set PROM for the 2608A cannot be used in a 2608S, the information for that special character set is kept on file at Boise Division and can be used to make a special PROM for the 2608S.

A competitive advantage which the 2608S has over chain or band printers is that 16 character sets are resident in the printer; and each character set includes 128 characters. Typically, only one character set can reside in chain or band printers, with each character set containing significantly fewer characters. Additionally, all of the 2608S' character sets can be accessed on any system.

Existing character sets are available that include many national languages, math characters, line draw and block character sets.

## HP 2608S Operator's Manual Available

*Mike Miloch/BSE*



The 2608S Operator's Manual (02608-90911) is now available from CSO. The manual was formatted and printed using HP's 2680 laser printer.

# DMD

## HP 7933H Cable Comments

*Mary Boles and Ed Paulinik/DMD*

### HP-IB

Each HP 7933H 404Mb disc drive is shipped with a one meter HP-IB cable. However, there may be certain HP 3000 configurations where a longer cable is needed to connect the disc drive to the GIC. In these circumstances, a longer HP-IB cable may in fact be used only if all the HP-IB loading and cable length restrictions are satisfied as defined in the HP 3000 Computer Systems Configuration Guide. Longer HP-IB cables may be ordered as follows:

Length	P/N	Order From
2 meter	#10833B	CSO
4 meter	#10833C	CSO
6 meter	#8120-3448*	CPC

\* Indicate on order in remarks section; "contact Cathy Hoover, cord contracts, if there is any question of part number."

## Power Cords

Have you taken delivery of your 7933H and realized you ordered the wrong power option? Now what do you do?! Corporate Parts Center (CPC) and Parts Center Europe (PCE) stock 7933H power cords. You should contact CPC or PCE and submit a hot line order for the power cord. The power option number, power cord option number, and HP part number are listed below:

Power Option #	Power Cord Option #	P/N
Standard	904	8120-3364
120	903	8120-3303
220	904	8120-3364
221	902	8120-3307
222	906	8120-3330
241	900	8120-3332
242	901	8120-3305

Devices are reconfigurable on site through qualified HP service personnel. This reconfiguration for power requires about 30 minutes.

VCD

## HP 2601A Sound Enclosure

Harold Fast/VCD

The HP 2601A Letter Quality Printer is a necessary part of word processing systems that use HP computer equipment. Letter quality printers, however, often print at a noise level that may be disruptive to an office environment.

The solution to this problem is the 92177E/F Sound Enclosure that is available from CSO. This enclosure reduces the sound by over 30% and still allows access to platen positioning and the front control panel. You can read more about it on page 11 of

CSO's Spring 1982 Computer User's Catalog. The price is \$440 or \$450, depending upon the voltage required.

The question has arisen as to whether or not the enclosure is large enough to handle the optional tractor feed mechanism on the 2601A. We're pleased to tell you that it is.

## Remote Spooling Your HP 2631B

Bob Weis/VCD

"I have an HP 2631B slaved off of a 2623 terminal and now would like to remote spool it off of our HP 3000. Can you tell me what upgrade kit to order for the 2631B?"

This is one of the most often requested upgrades: how to change a 2631B to Option 331; a remote spooled printer.

When you have a 2631B with a RS-232 interface, all you need to do to enable Option 331 (remote spooling) is change some of the switch settings. There are no boards or connectors to change. There may be a cable change necessary, depending upon which host the 2631B was connected.

Option 331 is a no-charge option and VCD simply ships the printer with the proper switch settings enabled.

The following lists the switch settings necessary to allow your RS-232-C 2631B to be remote spooled to any 3000 up through the Series 64. We can provide further configuration information including the 3000 configuration for remote spooling should you need it.

## 2631B Option 331

Interface: 02631-60230  
Adapter: 02631-60234  
Control Panel: 02631-60203  
Cable: 02631-60065

### Switch Settings

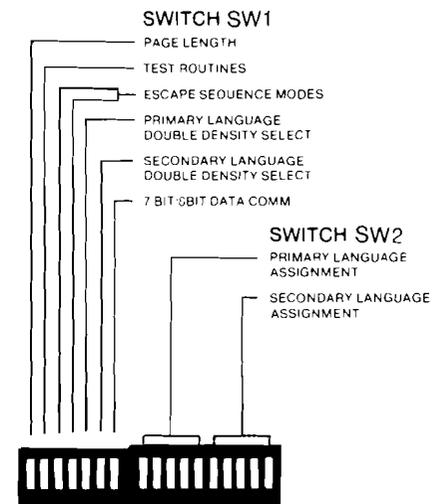
O = Open  
C = Closed  
X = Don't Care

Print Logic PCA (02631-60225)  
1-0 2-0 3-C 4-0

or  
Print Logic PCA (02631-60601)  
sw1: 1-0 2-0 3-0 4-0 5-C 7-C  
sw2: 1-X 2-X 3-X 4-X 5-X 6-C 7-X  
8-X 9-X 10-X

Adapter PCA (02631-60234)  
1-0 2-C 3-C 4-C 5-C 6-C 7-0 8-C

Serial I/O PCA (02631-60230)  
1-0 2-0 3-0 4-0 5-0 6-C 7-C 8-C



Switch Configuration

## HP 2601A Print Wheels

Mike Polansky/VCD

There has been some confusion over which print wheel to use with the HP 2601A. As I'm sure you are aware, both plastic and "metalized" wheels are available.

The plastic wheels are economical and produce "good" acceptable letter-quality print. Normal daily usage would probably be adequately handled with a plastic print wheel.

Metalized print wheels have a metal coating that increases their durability and permits designing the type face for the best possible print image. Combined with the multistrike ribbon, metalized wheels produce a very high quality print.

The point is simply this: metalized print wheels not only last longer but produce a higher quality output.

Different levels of print quality are difficult to explain. Print samples from each wheel type tell the story best.

Don't forget that the CSO catalog is loaded with accessories for the 2601A like print wheels, print wheel storage albums, sound absorbing pads and enclosures, and bidirectional forms tractors.

## HP 2671A/2671G/ 2673A Printer Differences

Harold Fast/VCD

The HP 267X Series of thermal printers includes three models that, although upward compatible, have different features. This article will provide a brief review of those differences. No attempt is made to list all of the features of any of these print-

ers, only those where some differences exist between models. Please refer to the data sheet for a full list of printer features.

### HP 2671A

This printer is alphanumeric only supporting the full USASCII 128 character set. There are no graphic capabilities. In addition to USASCII, the line drawing and Roman Extension character sets are standard. There are no optional character sets available. Interfaces available are HP-IB, RS-232-C, 8-bit parallel, and Centronics parallel. This printer has the ability to print either 80 columns on an 8-1/2 inch wide page at 10 characters per inch (normal mode), or 132 columns at 16.2 characters per inch (compressed mode).

### HP 2671G

The 2671G printer is identical to the 2671A printer with the exception that it also supports HP Raster Graphics. All other features are identical.

### HP 2673A

The 2673A is the top of the 267X printer line. It supports all of the alphanumeric printing features of the other two printers. Additionally the 2673A supports EXPANDED mode print (5 characters per inch), bold print (for emphasis), character framing, horizontal TAB control, auto page control (manages bottom of text and top of text according to user defined text length regardless of page length), and six additional ISO character sets (standard). The 2673A supports all of the 2671G graphics features plus auto centering, offsets and windowing.

AUTO CENTERING allows the graphics image to be automatically centered on the printed page regardless of the size of the image.

WINDOWING allows the user to send only a selected portion, or window, of the graphics image to the printer.

OFFSETS allow the user to define the placement of the graphics image on the printer by defining the starting X-Y coordinates for the upper left corner of the image.

The 2673A also has additional user features. For example, the user can define margins, tab stops, print mode, character set selection, communications parameters, and other user definable characteristics from the control panel. On the 2671 printers, user definable features can only be defined with escape sequences from the host system. Furthermore, with the 2673A, these user definable characteristics are non-volatile and, therefore, are not lost when power is shut off.

The net result is that the 2673A is more flexible and is more user oriented than its lower cost counterparts.

## HP 2631G Graphics Printer Sale

Harold Fast/VCD

Do you have a customer who has a real need for an HP 2631G Graphics Printer but can't quite scrape together the \$4900 price? Well here is your opportunity to help him/her.

The Southern Sales Region has a number of 2631G Graphics Printers in consignment that are to be sold at a discount. These printers are between two and three years old and are being offered at a price of \$3400, a savings of \$1500 over list price. VEU and OEM discounts will still apply, of course.

The price does not include installation but does include a full 90-day warranty. If your customer is interested, you may contact Virginia Thornton in Atlanta at 404-955-1500 for serial numbers.



## Computer Groups Price Changes Effective July 1, 1982

These prices, effective July 1, 1982, will appear on the Corporate Price List on that date, available in your office. Prices are US List unless otherwise noted, and subject to change without notice.

**Note: Shaded area indicates price decrease**

### Systems Re-Marketing Operation

Product No.	Description	Current Price	New Price
7970BN	7970B RTN credit	-3,000	-1,000
30055AN	SSLC return credit	-500	-100
7920MN	7920M disc return credit	-6,800	-5,800
7920SN	7920S disc return credit	-5,000	-4,000
7925MN	7925M disc return credit	-9,800	-7,800
7925SN	7925S disc return credit	-8,000	-6,000

### Computer Support Division

12824S	SSS for VIS/1000 firmware	5	15
22823A	CSS for MPE + SPL	235	300
Opt. 008	CSS for DBMS	145	100
Opt. 020	CSS for view	90	70
22823T	CSS for MPE + SPL	235	300
22940A	2100 computer O&M	1,650	2,100
22942A	7900 disc drive O&M	825	1,050
91303A	1000 Series computer O&M	1,320	1,680
91304A	Disc drive O&M	825	1,050
91305A	264X terminals O&M	660	840
91306A	262X terminals O&M	165	210
91307A	263X printers O&M	495	630
91308A	2608 line printer O&M	825	1,050
91309A	7970B mag tape O&M	825	1,050
91310A	7970E mag tape O&M	825	1,050
30130T	CSS for RJE	40	60
32102T	CSS for FORTRAN	50	55
32111T	CSS for BASIC	50	55
32209T	CSS for V/3000	90	70
32235T	CSS for DBMS/3000	145	100
32238T	CSS for opt/3000	60	75
32250T	CSS for DSG	60	65
32430T	CSS for Series 30 FOS	350	400
32440S			
Opt. 022	Tape cartridge updates	20	50
32440T			
Opt. 022	Tape cartridge updates	20	50

### Computer Support Division Continued

Product No.	Description	Current Price	New Price
32440V			
Opt. 022	Tape cartridge updates	40	70
32440T	CSS for Series 44 FOS	450	500
32440BT	CSS for resegmented FOS on Series 44	550	575
32445S			
Opt. 022	Tape cartridge updates	20	50
32445T			
Opt. 022	Tape cartridge updates	20	50
32445V			
Opt. 022	Tape cartridge updates	40	70
32446S			
Opt. 022	Tape cartridge updates	20	50
32446T			
Opt. 022	Tape cartridge updates	20	50
32446V			
Opt. 022	Tape cartridge updates	40	70
35021A	SE assistance for Bus. Comp./T&M	95	100
35021B	SE assistance for Tech. Comp./T&M	95	100
35055N	Application SE assistance T&M	95	100
35032A	SE assistance for Bus. Comp./1 day	675	750
35032B	SE assistance for Tech. Comp./1 day	675	750
35054N	Application SE assistance/1 day	675	750
36580T	CSS for IFS/3000	35	45
91711S			
Opt. 020	Minicartridge	10	20
91711T			
Opt. 020	Minicartridge	10	20
91730T	CSS for multipoint	45	55
91750CT	CSS for DS/1000-IV	65	75
91750CT			
Opt. 020	Minicartridge	20	40
91750FT	CSS for DS/1000-IV	65	75
91750FT			
Opt. 020	Minicartridge	20	40
91750GT	CSS for DS/1000-IV	65	75
91740GT			
Opt. 020	Minicartridge	20	40
91750CS			
Opt. 020	Minicartridge	20	40

# Price Changes

## Computer Support Division Continued

Product No.	Description	Current Price	New Price
91750FS			
Opt. 020	Minicartridge	20	40
91750GS			
Opt. 020	Minicartridge	20	40
91780S			
Opt. 020	Minicartridge	20	40
91780T			
Opt. 020	Minicartridge	20	40
92065T	CSS for BASIC/1000M	40	50
92069CT	CSS for IMAGE/1000	55	65
92069CT			
Opt. 020	Minicartridge	15	25
92069FT	CSS for IMAGE/1000	55	65
92069FT			
Opt. 020	Minicartridge	15	25
92069GT	CSS for IMAGE/1000	55	65
92069GT			
Opt. 020	Minicartridge	15	25
92069CS			
Opt. 020	Minicartridge	15	25
92069FS			
Opt. 020	Minicartridge	15	25
92069GS			
Opt. 020	Minicartridge	15	25
92076T	CSS for BASIC/1000L	40	50
92080S			
Opt. 020	Minicartridge	15	40
92080T			
Opt. 020	Minicartridge	15	40
92101T	CSS for BASIC/1000D	40	50
92101T			
Opt. 020	Minicartridge	0	5
92101S			
Opt. 020	Minicartridge	0	5
92832T	CSS for PASCAL/1000	40	50
92834CS	SSS for FORTRAN	10	15
92834CT	CSS for FORTRAN	25	40
92834GS	SSS for FORTRAN	10	15
92834GT	CSS for FORTRAN	25	40
92840S			
Opt. 020	Minicartridge	0	5
92840T			
Opt. 020	Minicartridge	0	5
92841S			
Opt. 020	Minicartridge	20	40

## Computer Support Division Continued

Product No.	Description	Current Price	New Price
92841T			
Opt. 020	Minicartridge	20	40
35039A			
Opt. 001	1 addtl day for instal. mgmt consult.	675	750
98907A			
Opt. 001	1 addtl day for desktop interface. cons.	675	750
98098A			
Opt. 001	1 addtl day for RJE bisync datacom consulting	675	750
98099A			
Opt. 001	1 addtl day for sys 45 DBM consulting	675	750
32260T	Functional CSS for MM/3000	130	150
32260DT	Functional CSS for German MM/3000	130	150
32260ET	Functional CSS for Spanish MM/3000	130	150
32260FT	Functional CSS for French MM/3000	130	150
32260HT	Functional CSS for Dutch MM/3000	130	150
32260KT	Functional CSS for Katakana MM/3000	130	150
32260NT	Functional CSS for Norwegian MM/3000	130	150
32260ST	Functional CSS for Swedish MM/3000	130	150
32260UT	Functional CSS for British MM/3000	130	150
32260XT	Functional CSS for Finnish MM/3000	130	150
32260ZT	Functional CSS for Italian MM/3000	130	150
32265T	Base CSS for mfg. application	220	260
32265DT	Base CSS for German mfg. application	220	260
32265ET	Base CSS for Spanish mfg. application	220	260
32265FT	Base CSS for French mfg. application	220	260
32265HT	Base CSS for Dutch mfg. application	220	260
32265KT	Base CSS for Katakana mfg. application	220	260

## Computer Support Division Continued

Product No.	Description	Current Price	New Price
32265NT	Base CSS for Norwegian mfg. application	220	260
32265ST	Base CSS for Swedish mfg. application	220	260
32265UT	Base CSS for British mfg. application	220	260
32265XT	Base CSS for Finnish mfg. application	220	260
32265ZT	Base CSS for Italian mfg. application	220	260
32270T	Functional CSS for PM/3000	130	150
32270DT	Functional CSS for German PM/3000	130	150
32270UT	Functional CSS for British PM/3000	130	150
22801X	Programmer's introduction	6,500	7,250
22802X	System manager	6,500	7,770
22807X	System operator	3,900	4,800
22808X	Application design	6,000	6,700
22811X	Office products	4,900	5,800
22830X	VPLUS/3000	6,500	7,250
22838X	Laser Printer	5,600	8,400
22956X	IMAGE/3000	6,500	7,250
32261X	MM/3000	6,500	8,000
32271X	PM/3000	6,500	8,000
32272X	Application custom.	7,000	7,200
32288X	GA/3000	2,500	3,200
32289X	AP/3000	2,500	3,200
32290X	AR/3000	1,250	1,600
35013X	DICTIONARY/3000	6,500	8,000
35014X	TRANSACT/3000	6,500	8,000
36579X	TDP	2,600	3,200
35046X	Series 80 I/O	4,000	4,800
35047X	Series 80 assembly	4,500	4,800
35048X	Series 80 beginners	2,300	2,700
35043X	HP 125 prog. develop.	5,200	8,100
45103X	HP 250 comprehensive	6,000	6,700
22995X	RTE-IVB sys. manager	7,500	7,100
22996X	Advanced RTE workshop	10,000	6,900
22979X	RTE-A.1 upgrade	4,000	3,700
22980X	RTE-A.1 system user	7,000	8,000
22981X	RTE-A.1 system programmer	7,000	8,000

## Computer Support Division Continued

Product No.	Description	Current Price	New Price
22982X	RTE-A.1 for RTE users	6,000	5,600
22983X	Microprogramming	8,750	7,400
22984X	Advanced RTE-A.1	7,500	7,300
22986X	RTE-6/VM upgrade	4,000	4,300
22988X	RTE-6/VM session monitor	12,500	14,500
22989X	RTE-6/VM system manager	7,500	7,300
22990X	RTE driver writing	10,000	6,700
22993X	IMAGE/DBMS	7,500	7,800
22994X	RTE-IVB/session monitor	12,500	14,500
22951X	Intro to HP 3000 computers	5,000	6,500
22952X	HP 1000 assembler	6,250	6,600
22953X	RTE-L/XL programming	6,250	6,500
22954X	RTE-L for RTE users	4,000	3,200
22955X	Advanced RTE-L/XL	6,000	4,700
22957X	DATA CAP/1000-II	7,500	8,000
22960X	PASCAL/10000	6,250	6,900
22963X	Instrument I/F W/HP-IB	7,000	6,000
22968X	DS/1000-IV user	6,000	4,300
22969X	DS/1000-IV internals	10,000	7,000
22970X	DS/1000-IV to DS/3000	4,000	3,200
22978X	Advanced RTE-L/XL	6,250	6,500
98501X	Basic programming	4,250	5,200
98502X	9845 O+P	6,000	8,000
98505X	9845 advanced graphics	6,500	6,100
98506X	9845 EGS	5,400	5,700
98510X	9826 O+P	6,000	7,250
98511X	PASCAL	7,500	7,400
98502A	9845 oper. + prog.	800	875
98503A	9845 BASIC I/O	800	900
98525A	HPL I/O programming	700	800

## Computer Systems Division

45003A	64Kb memory	1,500	1,000
45004A	128Kb memory	2,000	1,500
45265A	System software upgrade	1,800	1,300
45265A			
Opt. 002	Delete 64Kb memory	-950	-450

# Price Changes

REINHARDT, HELMUT  
FRANKFURT (REGION HG)  
HFGR 8300

## Information Networks Division

Product No.	Description	Current Price	New Price
32233A	COBOL II/3000 compiler	4,075	5,000
32233M	RTC 32233A W/O sublicense	2,050	2,500
32233R	RTC 32233A W/sublicense	2,050	2,500

## Boise Division

2608A	400 LPM dot matrix printer	10,900	11,600
2608A			
Opt. 046	HP-IB subsystem option	290	0
2608A			
Opt. 110	Sound cover/static eliminat.	240	260
2608A			
Opt. 251	HP 250 subsystem option	600	100
2608A			
Opt. 300	HP 3000 Series III S/S opt.	1,000	600
2608A			
Opt. 835	HP 9835 subsystem option	600	100
2608A			
Opt. 845	HP 9835 subsystem option	600	100
2617A	600 lpm printer	18,100	19,980
2680A	Intelligent page printer	86,500	90,500
2680A			
Opt. 300	HP 3000 Series III subsystem	5,500	1,500
2680A			
Opt. 301	HP 3000 Series 30 subsystem	5,500	1,500
2680A			
Opt. 302	HP 3000 Series 33 subsystem	5,500	1,500
2680A			
Opt. 344	HP 3000 Series 44 subsystem	5,500	1,500
2680A			
Opt. 364	HP 3000 Series 64 subsystem	5,500	1,500
26804A	HP 2685 print station	160,000	163,000
7908P	16.5 Mb disc/tape	9,900	10,900
7908P	16.5 Mb disc/tape	9,900	10,900
7911P	28.1 Mb disc/tape	12,500	14,500
7911R	28.1 Mb disc/tape	12,500	14,500
7912P	65.6 Mb disc/tape	15,000	17,000
7912R	65.6 Mb disc/tape	15,000	17,000

## Boise Division Continued

Product No.	Description	Current Price	New Price
7970B			
Opt. 004	Extender board	32	75
7970B			
Opt. 005	3 I/O connectors	37	70
7970E			
Opt. 004	Extender board	135	330
13192A	Write test kit	320	475
26078A	7971 type cabinet	2,300	3,500
26078A			
Opt. 001	Hardware for lower drive	-100	0
7971A	Mag tape and cabinet	10,000	11,000
7971A			
Opt. 340	Single base subsystem/3000	5,000	6,000

## Greeley Division

9876			
Opt. 002	RS-232 interface for 9876	160	350
9885			
Opt. 025	9885 interface to 9825A	500	525
9885			
Opt. 035	9885 interface to 9835A	500	525
9885			
Opt. 045	9885 interface to 9845A	500	525
11479			
Opt. 002	RS-232 interface for 11479	160	350
98023F	9878 rack mount kit	74	125
98024F	9885 rack mount kit	74	125
98741A	9874A stripchart holder	79	250
9876A	Thermal graphics printer	5,125	6,000
11479A	OEM thermal printer	4,465	5,700
9885M	8"S-S flex disc — master	3,500	3,800
9885S	8"S-S flex disc — slave	2,750	3,000
9878A	I/O extender	1,900	2,100

## San Diego Division Instrument Group

9111A	Graphics tablet	2,050	2,250
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HEWLETT  
PACKARD