

# COMPUTER SYSTEMS NEWSLETTER

*For HP Field Sales Personnel*

FRANKFURT

REINHARDT HELMUT

HEWLETT  PACKARD

Vol 1, No. 5  
Aug. 15, 1976

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- **Intelligenten 2644's für STAHLWERKE SUDWESTFALEN Aus DTD**
- **In-house Applications of the HP 3000**
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# BOISE DIVISION NEWS

## **VIDAR RECEIVES FIRST 48V DC UNITS FOR 7970 MTU**

*By: Ronnie Covington/Boise*

Vidar, a division of TRW, in Mountain View, California, markets a digital switching system to independent telephone companies. A vital part of this system is an HP 7970 mag tape drive which helps log the amount of traffic in a central billing office.

A recent enhancement to the HP 7970's is the 48V DC power supply. This new supply enables telephone companies to power the tape drive directly from the 48V DC source commonly used in this industry. By eliminating the DC-AC inverter, the customer not only eliminates an expensive piece of equipment but another vendor in the process.

The 48V DC power supply can be an important feature when you are selling into the telephone marketplace.

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## **BOISE: MEETING THE CUSTOMERS' NEEDS FOR SPECIAL CHARACTER SETS**

*By: Steve Richardson/Boise*

The international market for computers and computer systems is large and still growing. This can affect salespeople worldwide, as many U.S. OEM's aggressively seek to enter international markets. These markets have special requirements which the OEM must meet in order to be successful.

One of the major special requirements is the need for foreign language character sets on peripherals, which Boise Division has been working on for some time now. We have made it our policy to try to meet any foreign language or special character set requirements.

To date, we have been able to offer both 64 and 128 character Swedish/Finnish on the 2607A line printer, and 7 different foreign languages on the 2613A, 2617A, and 2618A, ranging from Cyrillic/Russian to Iraqi/Arabic. Dataproducts Corporation also offers many foreign character sets which we can arrange to get for our customers. In addition, there is a multitude of English character sets with special characters, such as a British Pound sign or Japanese Yen sign. Many of these are OCR-B readable, too.

If one of Dataproducts' existing character sets is not satisfactory to your customer, we can have them design a new one. This is, however, a long, expensive process. It may take

more than 6 months before we get the first printer delivered, and cost several thousands of dollars; but if your customer really needs it, this is definitely possible. Remember, however, that we may have an existing character set that will satisfy your customer's requirements, thus eliminating a lot of headaches for you and your customer, and reducing the cost as well.

We are seeing a trend toward the use of foreign language character sets. You may run into this in your own territory. If so, remember we probably have the character set for your customer.

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## **AT LAST A CLOSING LINE FOR MAG TAPES**

*By: Nick Voight/Boise*

"What color do you want it in?" — that famous closing line at long last is available for the 7970. You can now order the standard Mint Grey for use on 2100, or now an optional Olive Black (option 050 at no charge) to match your 21MX. Take your choice, and ask your customer, "What color do you want?"

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## **PROBLEM: HOW DO YOU SUPPORT TWO HIGH-OUTPUT SYSTEMS WITH ONE 2618A LINE PRINTER AND A VERY LIMITED BUDGET?**

### **SOLUTION: PURCHASE A 2607A**

*By: Chuck Ulfers/Boise*

Boise Division has an HP 3000 CX and a DOS Comsys/RJE system in its Data Center. We found that our output volume was too large for one printer, but not large enough to justify the purchase of a second 2618A, so we turned to the low cost 2607A for help. We now run the 2607A on our 3000 during the day when we do most of our software development. We then hook up the 2618A at night when we run most of our batch production jobs such as inventory control, run book and various accounting programs. We receive about 25,000 lines of RJE per day.

We have found that even though our 3000 is heavily loaded during the day, the 2607A is able to keep up with no problem. Out of the 18 hours per day that we are actually printing, 12 of those hours are used with the 2607. Switching printers from system to system is no problem, since both printers use the same driver.

# DATA SYSTEMS NEWS

## Sale\$ Succe\$\$e\$

### JERRY ALLEN NOT GROUNDED

by: *Dave Bunch/DSD*

Just a normal day in the life of a salesman as *Jerry Allen*, FE — Fullerton, walks into General Dynamics Electronics Division to pick up an order. Of course, if you look close you might pick out *John Young* and *Ben Holmes* in the party and think perhaps it is not just another order.

IT ISN'T!

Coordinating resources of San Diego, Cupertino and Palo Alto, *Jerry* was picking up an order for 165 systems with a bottom line of 5 million dollars.

GDE is going to use them for Ground Support Systems for the F-16 Airplane. They will find their way into installations of both the U.S. and Scandinavian Air Forces.

Great work, *Jerry!*



### IMAGE/1000 SALES REPORT

by: *Fred Gibbons/DSD*

Sales of IMAGE/1000 are coming in fast and the applications are many. Since introduction on June 7th, nine IMAGE/1000 packages have been sold yielding a total sales dollar value (hardware plus software) in excess of \$100,000! Here's a run down of customers, applications, and IMAGE/1000 salesmen to date.

CUSTOMER	TYPE	APPLICATION	FIELD ENGINEER
ASK Inc.	OEM	Manufacturing Information System	Chuck O'Daniel
Computer Election Systems	OEM	Vote Counting System	Paul Gilfoyle
GAMF, France	OEM		
Dr. Schneider Germany	OEM		
Billy The Kid	EU	Manufacturing Information System for Childrens Clothing	Bill Little
Carter Wallace	EU	Manufacturing Information System for Paper Manufacturer	Gene Ackerman
GE Lynchburg	EU	Quality Control System for Mobile Communications Systems	Ed Oakley
Rockwell	EU	Manufacturing Information System for Collins Radio	Jack Lazenga
Univ. of Houston	EU	Student Instruction in DBMS	Gary Stump

## Product News

### JULY PRICE LIST CHANGES

by: *Judy Coleman/DSD*

Listed below are the changes to the July Corporate Price List:

#### PRICE REDUCTIONS

12998A .....1500.00



#### NEW PRODUCTS

40018A and OPT 001, 015..... Cooling Fan  
 92063A and OPT 001.....Image/1000 Software  
 92825A .....Image/1000 Source Tapes  
 93723A and OPT 001, 002, .....Racking Checkout  
 003, 004, 005, 006, 007,  
 101, 102, 103, 104, 105  
 106, 107  
 22945A ..... Oper. Train. 7905A  
 22977A .....Image/DBMS Train.  
 22980A ..... HP-IB Bus Train.  
 22981A ..... HP-IB RTE Train.

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

**For research and education purposes only.**

## DELETIONS

29402B only OPT 001  
29402B only OPT 001, 002, 003  
29403B only OPT 001  
29404B only OPT 001  
29405B only OPT 001  
29406B only OPT 001  
29407B only OPT 001  
2102A only OPT 004, 008, 016  
2124A only OPT 204, 208, 216  
2125A only OPT 204, 208, 216

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## MANUAL PERIPHERAL SWITCHES

by: *Dave Bunch/DSD*



"YOU asked for it, you've got it."

Special option 93747A now gives you the ability to manually switch peripherals with standard 48 pin P.C. I/O boards between two 21MX Computers. This means you now have the capability of dual CPU peripheral sharing or perhaps, manual redundant systems *without additional software*.

The price is right. The 93747A costs \$2995. This allows one peripheral to be switchable. For additional switchers, (up to a total of 8 per switcher system), order 93747A — Opt 1 at \$1975.

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## NEW PART NUMBERS FOR 21MX MEMORY CABLES

by: *Dave Carver/DSD*

When a 21MX memory controller (2102A) is ordered with a mainframe, Data Systems will ship the appropriate, interconnecting cable as follows:

Part Number	Number of Connectors	Mainframe
5060-8365	3	2105A
02108-60015	6	2108A
02112-60016	11	2112A
12990-60015	20	12990A

When a 2102A is ordered by itself, the 11-connector cable (02112-60016) is supplied. No cables are supplied when memory modules (12994A, 12998A, and 13187A) are ordered as stand-alone items.

Customers who need only the cable should order from the Customer Service Center under one of the above numbers. The HP 12993A Memory System Cable has been removed from the Corporate Price List.

## STANDALONE STORAGE

by: *Bob Hoke/DSD*

The 7905A subsystem and add-on disc drives are now available in the 29425A Mini Rack cabinet. These can be ordered as:

**12962B — Subsystem in Mini Rack \$16,200**  
(includes plenum fan)

**13180B — Add-on drive in Mini Rack \$11,700**  
(includes plenum fan)

These new products provide the ideal solution to customers looking for mass storage in attractive low-boy cabinets. They are perfect for those customers that want to add the 7905A to their system but have the older style cabinets eg. 2860 or just don't want to add a full size cabinet.

These products are released and orderable immediately.

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## SELL MASS STORAGE.

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## ERROR ON 91000A A/D DATA SHEET

by: *Dave Hendrix/DSD*

The single-ended cable option (91000A Opt 005) and the differential cable option (91000A OPT 006) reference the part number of the cable your customer is to receive as 02313 - 60007 for the S.E. cable and 02313-60008 for the diff. cable. The cable part numbers are wrong!!

It turns out that the 02313-xxxxx cable connector will not fit on the 91000A card in the CPU so new cables have since been designed. The cable that is sent with 91000A-005 is now a 91000-60005 and the cable sent with the 91000A-006 is now a 91000-60004, both properly compatible with the 91000A in the CPU.

Please make these changes on your 91000A data sheet and in your Technical Data Manual for 9600 Systems and Networks (ref. P 3-18). Do not order the 02313-xxxxx cable for operation with the 91000A A/D, order the proper 91000-xxxxx cable as described above.

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## PRICING CHANGES

by: *Bob Hoke/DSD*

We've got some good news and some not quite so good news! First the good news:

As of Sept. 1, we are reducing the price of the 12960A Disc subsystem from the current \$12,000 to \$11,000. We are also reducing the price of the 2124B Discomputer from the current \$18,250 to \$17,250.

These reductions should provide just that impetus to get those customers started on the HP product family.

Now for the not quite so good news:

We are increasing the price of the add-on 7905A disc drive, the 13180A from the current \$9,975 to \$10,500. This in-

crease brings the profit contributions of the add-on drive into line with our objectives. The 7905A is now an extremely solid product and should be a good money product for you.

## GOOD SELLING.

# Sales Aids

## LARGE QUANTITIES ON 96XX SYSTEMS CAUSE DELIVERY PROBLEMS

by: Dave Hendrix/DSD

We love the orders but we need help from you!! The standard availability for each system option is based upon forecast calculations established upon past orders. Large quantity orders of any 96XX system option can possibly effect this availability just because DSD is not geared up for out-of-the ordinary quantities ordered.

As you are working on 96XX system orders and you are quoting a large number of any one of the options; PLEASE, PLEASE let us know of such quantity in some way. Give us a call or write a short TWX (TELEX) preparing us for your order. All we have to do is provide this information to our manufacturing people and they will begin to gather the parts and build the assemblies. Of course, be relatively sure of the order, we don't want to get into the "Call Wolf" mode of operation.

What are large quantities? That is sort of a nebulous question but rule-of-thumb would be above the quantity five (5). For a better feel for possible delivery problems look at the Availability Schedule, the longer the availability the more likely there will be a problem with delivery with a large quantity order. If the availability schedule reflects consult factory (#) call us on any quantity.

As I said, we love your orders and to establish shipment credibility for you, we must be aware of large quantity requirements. Thanks.

## A REVISIONIST VIEW OF THE COMPUTER

by: Joe Schoendorf/DSD

Following is a reprint from the July 1 issue of the GEYSER INDUSTRY LETTER. I found this very interesting — thought you might also.

"The next major market for computers is in the home — and it will totally swamp all other uses of digital equipment. There will be 10 million mainframes (main chips) in the home by 1985 — actually I think much sooner."

So says Ted Nelson, University of Illinois, Chicago, who addressed a session on personal computers at the National Computer Conference in New York in June.

"The common saying that the computer is just a tool is balderdash," he continued. "It is a way of life. Reading and writing is

a way of life. The automobile is a way of life and the computer is the same — a well-spring of how we get our information. We ought to stop talking about microcomputers. A radio is not a micro-radio and a tape-recorder is not a micro anything. A computer is a computer. Speeds may differ and cores certainly will — but they are all computers."

Mr. Nelson then took his listeners on what he termed "a revisionist view of history":

"People are surprised that computers are getting little but they should never have gotten big. People are surprised that computers are becoming dispersed. They should never have been centralized.

"Until 1964, computers were used as best they could be. They were purchased for specific applications and they were put in 'places' and people who had to use them used them there. Until 1964, I have no quarrel with IBM (or, to be even-handed, the major computer manufacturers). About 1964, there emerged two schools of computers — business computers and scientific computers. We should have gone to minis then.

"The unification of computers in a single department was one of the most monstrous things that has ever happened. And we have got to understand the past in order to understand the present.

"What was really happening when they centralized computers? They were setting up a department loyal to the manufacturer. In every company, there came to be a department, loyal not so much to the employer but to the company that made the computer — a very close and special relationship.

"The manufacturer would train the people and get them their jobs. The people would call on the manufacturer for bigger and bigger computers. The manufacturer would support and shield the people and defend them against threats, including the threats of other computers in-house. I fought this in three companies so I know what I'm talking about. 'Why should we have another computer when we already have one?' Why, indeed?

"Consider the cuckoo. It lays its eggs in other birds' nests. The baby cuckoos grow very fast, kick the other eggs out and eat the food the other birdlings would have gotten. Computer centers have been a cuckoo way of using computers all along, like making people sleep in dormitories in shifts. People should be allowed to sleep alone or in combinations of their own choosing.

"Now we have all these cuckoo operating systems and cuckoo accessing systems and cuckoo entry systems. Now, also, people are saying, 'Gosh, look at all the little computers.' At last, people are about to do what they should have done in the first place, and if we're not careful, IBM will get credit for it. 'Aren't you lucky Mother's here to pull the knife back out of your guts:'"

When the applause died down (sorry, IBM), Nelson continued: The harm has already been done to society by the centralization of computers — by the oppressive and inhuman systems for categorization and for confusing the public. Medieval Christianity fooled the public with Latin and the confessional. Now it's done with arcane language and nomenclature.

"If IBM had wanted the public to understand computers in 1964, the public would have understood them in 1965. And it's happening all over again with talk of assemblers, loaders, linkers, etc. and the saying, 'You've got to walk before you can run.' Why walk or run when you can fly?"

The utter fog in which most people operate is the strangest part of the computer world to Nelson. "In an area in which supposedly technical rationality holds sway, I have never seen so many sheep ready to run this way or that at the next peculiar term that's introduced, which everyone thinks is important.

"There are very few companies that actually know what they're doing. I would say off hand these are *Intel, Hewlett-Packard, Data General, Texas Instruments* and *Diablo (Digital Equipment* has at last brought its marketing concepts into the 1980's).

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## Division News

### DID YOU KNOW . . .

by: Pam Macdonald/DSD

Two new people just joined the Data Systems Technical Marketing, Software Support Group.

*Gary Gubitz* joined us in May. Originally from New York, *Gary* received his BS (1973) in mathematics from S.U.N.Y. in Albany, and his MS (1976) in Computer Science from Ohio State University. He has had experience programming in COBOL, ALGOL, FORTRAN, SNOBOL, and APL. His most recent experience was at the Institutional Group Information Corporation in New York.

*Gary Gross* who came on board in June, received his BS (1976) in Electrical Engineering from the University of Notre Dame in Indiana. *Gary* has a very diversified work background, beginning in assembly, electronic technician, computer operator, computer programmer and systems design, with his most recent as an electronic technician for the Notre Dame Nuclear Physics Department.

Both of these individuals are very energetic and I know you will enjoy working with each of them.

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# Keep Selling!!

## Competition

### MODCOMP COMPETITIVE INFO

by: Dave Borton/DSD

How can you be more effective competing with Modcomp? During a discussion with *Dan Gollohan*, a new Dallas FE who recently worked in the field for Modcomp, a few miscellaneous items came to light that may help you in your sales efforts. As is always the case, these "facts" are subject to change so keep us informed if you find that Modcomp is changing their strategy or has enhanced their capabilities.

Modcomp's strengths are in industrial measurement and control systems and in data communications applications. Their strength in data comm, operating systems software, and the availability of Cincom's TOTAL data base management software make Modcomp a strong competitor in \$50K to \$100K systems. Their apparent ability to predict their competitors' prices and underbid them when they want to get the business makes them even more formidable.

Modcomp's weaknesses include their reportedly inferior MTBF numbers than the 21MX plus their longer MTTR's due to making repairs at the component level. This results in lower systems availabilities. Also, the Modcomp II only supports 64K words of memory. (Remember when we only had 32K? The shoe is now on the other foot!) MAXNET network software supposedly requires a base system of 32K words with only 32K left for user programs. The Modcomp I computer (Modcomp's lowest priced machine) only has 3 general purpose registers compared to 15 in the Modcomp II. This means that MAX III operating systems and MAXNET network software do not work in the Modcomp I. This keeps their network system prices high. Additionally, their file manager reportedly does not use named files like we do in our Batch Spool Monitor. Modcomp's customers must do more complicated programming to keep track of data on this disc. And don't forget that our IMAGE/1000 compares very positively with the Modcomp/CINCOM TOTAL; including one vendor support with HP!

#### SUMMARY

- Modcomp is vulnerable to lower cost starter system (under 50K).
- Modcomp will fight hard for the big deals.
- Modcomp has some good capabilities but potential weaknesses exist in their repair technique, in their 64K memory limit, and in their multi-vendor data base management.
- Good selling! We can win!



# DATA TERMINALS NEWS

## Division News

**JULY**

### DTD HONOR ROLL

By: Dick Byhrel/DTD



Here, we see DTD marketing toasting you guys for the super July performance!!

RANK	NAME	CUSTOMER	K\$
1	Lou Castagnola	Value Engr.	50K
2	Tony Gunn	Moim	45K
3	Frank Manderscheid	State of Illinois	44K
4	Don Thomson	Hydro Power	38K
5	Jean-Luc De Shutter	Boel Usines	34K
6	Len Souza	Air Force	33K
7	Stan Segal	MSTI (ATL)	27K
8	Pietro De Luca	Eurobit SRL	27K
9	Klaus Dziubek	Univ. Stuttgart	24K
10	Bill Clark	CA Mini	24K
11	Stan Merrell	Boeing	22K
12	Sherif Alaily	Northern Telecom	21K
13	Felix Balmaz	NSA	21K
14	Jack Lazenga	Star Forms	19K
15	Olaf Meyer	H. Crone	18K
16	Rick Baker	Pac. Power	18K
17	Al Nonnenberg	Knight-Ridder	17K
18	Kalevi Puonti	Helsingborgs Dagblad	17K
19	Gilles Bastien	Info Internationale	16K
20	Raphael Lemarie	Snias	13K
21	Tom Montella	Bell Telephone	12K

## ONESY-TWOSY CONTEST DRAWS TO A CLOSE

By: Carl Flock/DTD



LAST CALL!! Onesy-Twosy Tigers! The first annual Onesy-Twosy Contest is drawing to a close.

Currently, ESR is far ahead in the standings. NSR is not even a close second — maybe they are just holding out for a last second blitz. Right, Neely?

Why Onesy-Twosy? The facts show that you should spend time selling terminals onesy-twosy. Here is what we have found after 1-1/2 years of selling terminals:

- The onesy-twosy sale is usually, a sale of 3 terminals the first year (\$12,000);
- The onesy-twosy sale has lead to most of the "Big Deals" — five or greater — sales (\$160,000+);
- The onesy-twosy sale has, in some situations, led to the "40+" sales (\$160,000+);
- The attempt at a onesy-twosy sale has sold large HP systems — (i.e.; HP 3000's, etc.) (\$300,000+);
- For many people, the terminal is all they see or want to see of their computer system. Day after day they see nothing but HP on their terminal until HP becomes not only a terminal but, in fact, the system.

### LAST CHANCE TO ENTER!

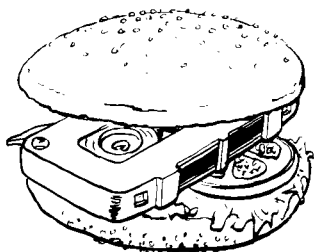
Aggressive salesmanship is key, but prompt entry also counts because in case of a tie, the entries with the earliest postmarks will be first. The decision of the judges will be final. All entries must be postmarked by SEPTEMBER 2, 1976.

GOOD LUCK! All you Onesy-Twosy Terminal Tigers!



## YOU DESERVE A BREAK TODAY! CALL DATA TERMINALS!

TWO ALL DATA TAPES  
SPECIAL KEYS,  
FASTER BOARDS,  
EASY EDITS,  
ALL IN A TWO-TONE  
RIGIDIZED CABINET



## Sales \$ Successes \$

### FELIX FINDS FEDERAL FUNDS FOUNTAIN!

By: Dick Byhrel/DTD



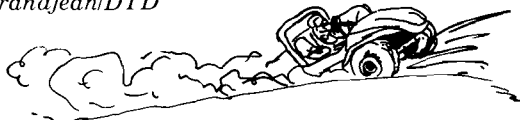
Again, *Felix Balmaz* of our Rockville office lands another \$22K order for 2640's at NSA. This brings his total for this year to well over \$300K.

The application is still as secret as ever; all we know is that they are being used on non-HP systems.

*Felix*, thanks again!

### "STAHLWERKE SUDWESTFALEN SHIFTS INTO HIGH GEAR!"

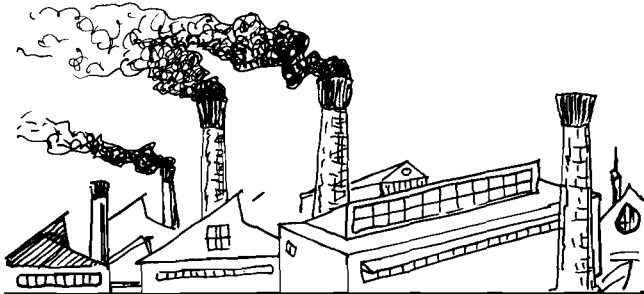
By: Eric Grandjean/DTD



Thanks to *Werner Kanthak*, this German steel mill will soon be using HP terminals; about \$27K worth of 2644A's.

Their application is data collection and production control, and the terminal controller is one of DTD's favorites, the 2000 Time Share. The 2644's will be located in a number of stations in the factory, where they will help produce steel for the German automobile industry.

Thanks, *Werner* for closing this order for DTD!



## Order Processing

### SHIPPING HOLDS AND THE FE

By: *Ralph Pritchett/DTD*

DTD has two types of shipping holds.

1. DTD O.P. applies a hold when some action by the field is needed before the order can ship (usually a change order for configuration, discount change, etc). We notify you of need and you notify us as to action to take.
2. The most common type of shipping hold is when a credit release is required as indicated in special instructions. Our factory O.P. procedure is to get credit release from the sales office *three weeks prior to shipment*. The first week is to allow for field response. The second week is the week we build the terminal, and release must be given before we start building. If no release is given, we will reschedule the order. In both cases, notice you are the key element in lifting the hold and getting the order shipped.

## Product News

### CHARACTER SET UPGRADES REVISITED

By: *Rich Ferguson/DTD*

If you have a customer with a 2640 or 2644 who wants to upgrade to a line drawing, math symbol or lower case Roman character sets, order the following from CPC and refer to the respective installation and service manual.

Math Set	1816-0642
Math Template	9320-3173
Line Set	1816-0641
Line Template	9320-3172
Low Case Roman	1816-0613

### BMMC CHANGES FOR THERMAL PRINTERS

By: *Ed Churka/DTD*

As of August 1, the 13246A (9866A) will be \$20 per month with a quantity discount of 20% with 5 or more subsystems at one location. This change will make it consistent with the 13246B. The old BMMC was \$18.00. The 13349A Impact Printer Subsystem (9871A) is now released (July 16, 1976) and has a BMMC of \$30 with a 20% quantity discount for 5 or more subsystems at one location.

These monthly charges include all the options available on the printer subsystems in 1976.

# GENERAL SYSTEMS NEWS

## Product News

### 3000 ARCHITECTURE FEATURES AND BENEFITS

By: Jerry O'Neill/ESR

With Series II here, a review of the 3000's features for the technical types is in order. In reading this material, please keep two points in mind:

- With the possible exception of the DEC-20, no other "mini" has anything close to the 3000's architecture.
- The people we sell to range from novices to expert; even the expert gets confused by buzz-words.

Q. *What's a STACK?*

A. A stack is a group of consecutive memory locations used to store data values during program execution. We call it a last-in, first out (LIFO) data structure because, in practice, we access its data at or relative to its beginning (top of stack).

Q. *What are STACKS used for?*

A. Although fixed data may be present on a data stack, stacks are mainly used for temporary data storage.

Q. *How does a STACK differ from an ordinary buffer area?*

A. It's true that a stack resembles a buffer in memory in that it must be allocated in physical memory, has a finite size, and is used for temporary storage. But a stack is much more. A stack is dynamic.

When we add items to a stack, we say we are "push"-ing them onto the stack; removal is called "pop"-ing. We have to know where within the stack we are adding to or removing from. This is implemented by a stack pointer register that always reflects the current "top of stack". To prevent us from pushing too far or pop-ing more than we put on the stack, we see that there are stack limit registers which are checked each time we access the stack.

Q. *Doesn't all this limit checking and pointer manipulation eat up time?*

A. Yes, it does. That's why all stack operations in the 3000 are done by firmware operating on internal, high-speed registers. Other machines maintain their registers in core, and, in some cases, call software subroutines to simulate hardware stack manipulation instructions.

What's more, on the 3000, as many as four (4) words at the top of the stack will be held in internal registers, eliminating fetches to memory, and dramatically increasing execution speed.

Q. *Are stack manipulation operations the only capability on the 3000?*

A. Many vendors claim to have stack-oriented machines by virtue of having suitable auto-increment/decrement with bounds checking hardware (DEC-11) or stack manipulation instructions in firmware (ECLIPSE). That's like telling you a machine has a byte-oriented instruction set because it has load/store byte instructions.

When we say that the 3000 is a stack-oriented machine, we mean that we have 64 stack op-codes that implicitly address the stack and cause operations to be performed on the data in the stack. This is in contrast to accumulator-or register-oriented machines where arithmetic and logical operations occur in reserved registers only.

A significant by-product of the implicit addressing of the stack is that the bits normally reserved in the instruction word for memory reference are not needed. Therefore, we are able to code two stack-ops in one word and have two operations performed for the price of one instruction fetch to memory.

Q. *Why do I need stacks to begin with?*

A. The use of stacks allows data privacy or localization. In a multi-programming system, if two users want to compile COBOL programs and they each had to use a separate copy of the compiler, we could waste a lot of time thrashing around reading code from virtual memory. There is a programming technique called re-entrant coding that enables more than one user to alternately use the same code. The thing that makes this possible is that the code area contains only instructions and constants, i.e., it does not change while being executed. Each user, however has his own, private data stack for those values unique to his compilation.

By divorcing data from code we get pure or non-selfmodifying code, which means that the code is re-entrant. Re-entrant code is interruptable and shareable.

A related area is recursive coding. Recursion is the calling of a routine by itself. Each time the routine calls itself, the stack facilitates the saving of the intermediate results of the prior call.

Stacks also play a major role in procedure entry and exit. With the stack marker mechanism on the 3000, parameter passing and stack cleanup become very convenient and efficient.

Stack operations are a natural mechanism for compilers to use in parsing expressions; the resulting code at runtime can make optimal use of the stack architecture in evaluating expressions.

- Q. Does the 3000's stack architecture affect system performance?
- A. In addition to the streamlining effects the stack architecture has on program execution speed and efficiency, it has a significant impact on system swapping overhead. A program consists of code segments and data segments and is managed by MPE, a virtual memory, multi-programming system.

When an executing program is suspended and another is to be brought into physical memory, the first program's data segment(s) must always be written out to disc. It's code segment is re-entrant (non-self modifying) and, thus, need only be re-read from disc when its turn again comes up; there is no need to write code segments back to disc since they never change. Large programs typically consist of multiple code segments and a single data segment. A given rollin is typically two disc reads; a rollout, one disc write.

- Q. When a program is rolled back into memory, does it have to occupy the same absolute addresses it did when it was swapped out?
- A. This brings up the area of MEMORY MANAGEMENT under MPE. When a program is executing, its code segment(s) and data segment(s) reside in physical memory. When the program is swapped out (data segment(s) saved on disc), the program is said to reside in virtual memory.

An important feature is that both code and data segments can be variable length. Code segments can be up to 16Kw long and data segments up to 32Kw long. The use of variable length segments avoids the "checkerboard" problem of wasted space when only fixed length segments are allowed.

Some systems have high overhead "garbage collector" algorithms that spend time squeezing out the memory holes produced by fixed length segmentation or paging techniques. To minimize swapping overhead, MPE uses a simple "first-fit" approach when looking for memory.

MPE will bring your program back into physical memory into whatever area is sufficiently large to hold the segments. Note that the data segment is dynamic; there is only as much disc I/O as is necessary to handle the current stack size. Unlike many systems, the MPE programmer can tell the system how he wants his code segmented. Did you know that on certain IBM systems, code can be segmented without your knowing it, right in the middle of a DO-loop? Thrash! Thrash!

The ability to load a code or data segment at any point in physical memory and execute it is called *dynamic relocatability*. All instructions on the 3000 operate relative to internal base registers. There are registers for code and registers for data. Whenever a program is rolled in or a context switch is done between two memory resident programs, these base registers are set up and execution begins.

Note that by the very nature of base register addressing multiple users are assured protection from each other.

**Good selling to those who turn on to stack oriented computers!!!**

## 7905 FIELD ADD-ON FOR 2000 ACCESS

by: Dan Jorgenson/GSD

Customers wishing to add 7905 discs to installed 2000 Access Systems (19700A) and 2000/F systems upgraded with 2000 Access level software (19665A) should order the HP 19701A from General Systems Division. This product includes a 7905 in a low-profile, stand-alone cabinet and options to make available a disc controller, and two different lengths of multi-unit cable. I will keep you posted if this should change.

### Corporate Price List

September 1, 1976

### Availability

8 weeks

### Description and Price

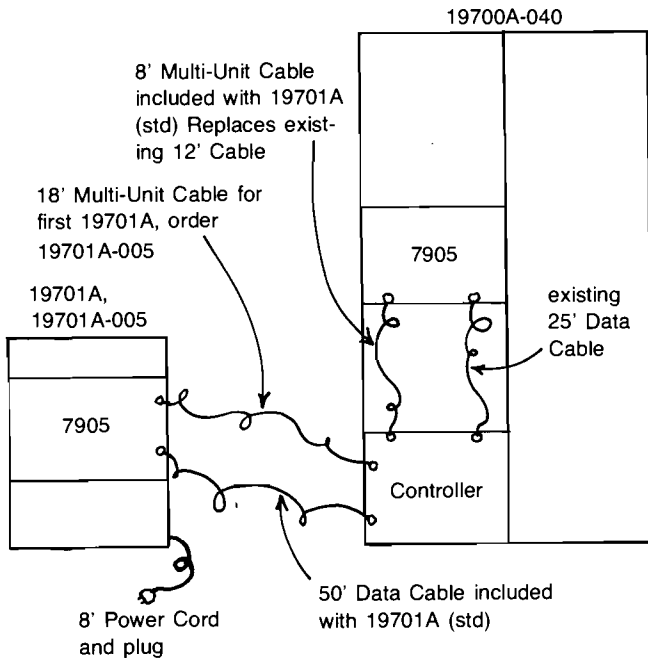
Product No.	Opt. No.	Description	Price	Monthly Maintenance
19701A		15 Mbyte field add-on disc for expansion of 2000 Access System. Includes 13180B disc unit, 13013A-003 8 ft. multi-unit cable and 13213-002 50 foot data cable. Notes: <i>opt 005</i> must be ordered when adding first 19701A to installed system already having at least one 7905 racked in 29400 series cabinet. <i>Opt 006</i> must be ordered for systems already having multiple 7905 racked in 29400 series cabinet. <i>Opt 007</i> must be ordered if this is the first 7905 to be added to an installed system.	\$11,700	\$105
	005	Additional 18 foot multi-unit cable. Required to connect first 19701A to installed 2000 Access system already having a 7905 racked in 29400 series cabinet.	355	0
	006	Additional 8 ft. multi-unit cable. Required to replace existing 12 ft. multi-unit cables interconnecting 7905 disc drives racked in 29400 series cabinets on installed 2000 systems. Note: number required equal to number installed drives minus one.	275	0
	007	Add 7905 disc controller (13037A) 18 ft multi-unit cable and 25 ft. data cable.	4,500	21
	015	220 230 VAC 50/HZ Operation	0	0

## New Site Prep and Installation Manuals

Site prep and installation procedures for the 19701A are part of the 2000 system site prep (19700-90005), site planning workbook (19700-90004), and installation (19700-90007) manuals.

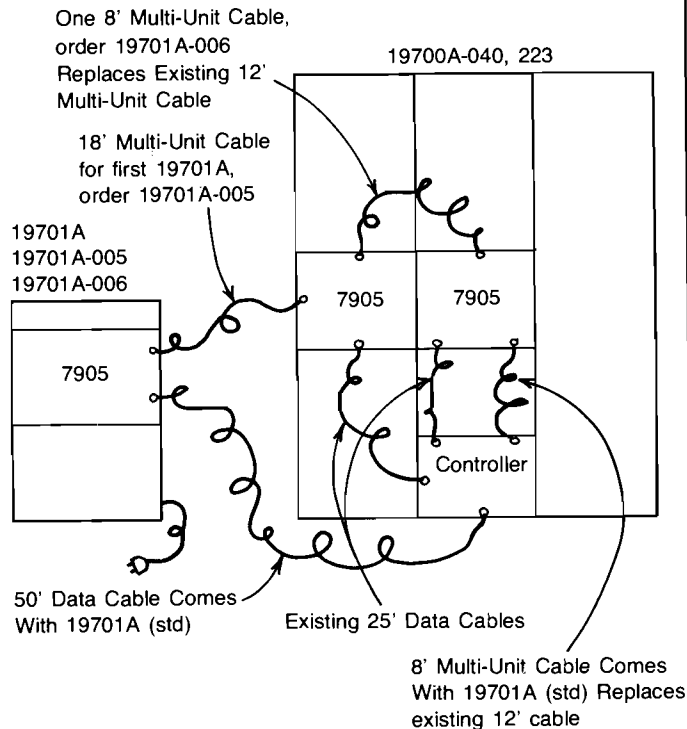
### Examples of Typical Installations

**Example #1** First 19701A added to 2000 Access System, Model 40.

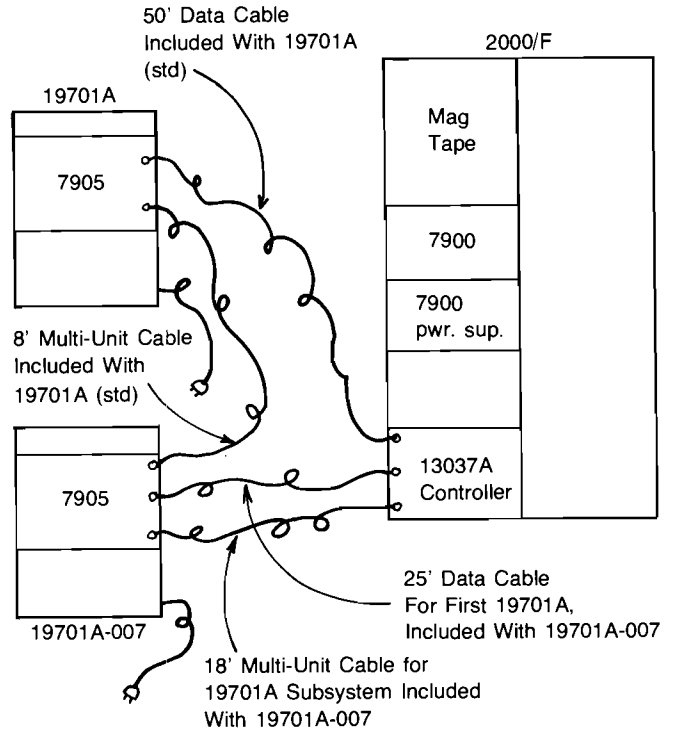


**NOTES:** (1) When adding the second 19701A to any system, order only the 19701A (std).

**Example #2:** First 19701A added to System With Multiple 7905's



**Example #3:** Adding 7905 Disc Subsystem and Additional 7905 Disc to 2000/F Upgraded to 2000 Access Level Software.



## COMPUTER CURRICULUM CORPORATION AND HP: SOME QUESTIONS AND ANSWERS

by: Hal Peters/GSD

Computer Curriculum Corporation (CCC) of Palo Alto, California has provided Computer-Assisted Instruction (CAI) courseware for HP 2000F customers (and others) for several years. From time to time, questions arise concerning the CCC courseware. The following is an attempt to answer some of these questions.

- Q. Which CCC courses now run on the HP 2000 Access System?
- A. The entire list of CCC courses that run on either the HP 2000F or 2000 Access, or both, is given in the following table.

Course	2000F	2000 Access
Reading, Grades 3-6	Yes	Yes
Language Arts, Grades 3-6	Yes	Yes
Language Arts, Grades 3-6 (Upper/Lower Case Version)	Yes	Yes
Adult Reading Skills	Yes	No
Adult Language Skills I & II	Yes	No
Adult Arithmetic Skills	Yes	No
GED (Preparation for the High School Equivalency Exam)	Yes	No
Basic English (Junior College-Level Remedial English)	Yes	No

Q. *What are the prospects for more of the CCC courses being converted for the Access?*

A. Very good. We await specific requests from new or existing customers.

Q. *Any chance of getting CCC courses on the HP 3000?*

A. We are just beginning to explore this. We must of course get IMF operational on the 3000 before any CAI courses can be implemented on that system.

Q. *What are the charges for CCC courses?*

A. The following is CCC's official Curriculum Lease Charge Policy as of 1 July, 1976. (These charges are applicable to any HP system.)

- There shall be a minimum monthly charge of \$150 for each course used on a system.
- There shall be an alternative charge basis depending on the total number of terminal ports on the system.

The monthly charge is as follows:

1 to 100 ports	\$20.00 per port
101 to 200 ports	\$2,000 for 100 ports, + \$15 per port over 100
201 to 400 ports	\$3,500 for 200 ports, + \$10 per port over 200
401 and above	\$5,500 for 400 ports, + \$5 per port over 400

- The monthly charge made for the lease of curriculum shall be the *greater* of charges defined in 1. and 2. above.
- The reduced rates in 2., above, may include ports on more than one processor if these are operated by a single, end-user customer. The total number of ports must include all those from which the curriculum can be accessed.

Q. *Isn't it true that CCC sells hardware, too?*

A. Yes. They sell *dedicated* CAI systems that appear to be efficient and cost-effective for providing their courses, but offer no opportunity for students (or others) to write programs in BASIC, or any other language. They usually bid their 32-terminal system a little under our 2000 Access, so a customer who wants only to run CCC courses can get by for less with CCC hardware. Most schools will not be satisfied unless they can have BASIC, and many will also want a good CAI authoring language (like our IDF or CWF) so that they can add CAI courses of their own design. These, of course, are our best prospects.

Q. *What about these stories that the versions of CCC courses that run on HP systems are out-dated and far inferior to the versions CCC offers on its own hardware?*

A. I put this question directly to Mr. David Munson, Vice-

President of CCC. He assured me that at the present time (July, 1976) the HP and CCC versions of CCC courses are "98%" the same. Minor differences have come about as individual CCC customers have occasionally requested some changes in some of the course data bases.

Not ruled out, of course, is the possibility that CCC will introduce substantially different courseware in the future, and then it would be a matter of negotiation as to if and when such courseware would be brought up on HP systems.

Q. *How does the CCC Mathematics Strands course compare with HP Math?*

A. This is a much-discussed topic and requires a lengthy answer. If you need information on this subject, give me a call.

Other questions concerning CCC courseware or related matters should be directed to me at (408) 249-7020 X2797.

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## IMAGE/QUERY ERRATA

By: Bob Huffstetter/GSD

Please change  $\left\{ \begin{array}{l} \text{Entries per data base: } 2^{23} - 1 (8,388,607) \\ \text{to} \\ \text{Entries per data set: } 2^{23} - 1 (8,388,607) \end{array} \right.$   
in your Performance, Prices and Configurations book for HP 3000 Series II Systems, on page 48.

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## New Applications

### HP 3000 MANUFACTURING SYSTEMS

By: Gary Atkins/Boise;  
Barbara Jacobsen/BAEDP;  
David Sohm/BAEDP

There are three major projects currently being developed on the HP 3000 for use in several HP manufacturing facilities. They are:

COSMIC — Customer Order Servicing for Management Information and Control

MPC — Manufacturing Planning and Control

COSACS — COSt ACcounting System

These projects are joint efforts between corporate EDP personnel and personnel from one or more of the following divisions: General Systems, Data Systems, Boise, Waltham, Andover, and San Diego. Each system is at different stages of completion based on the processes described by Segmented Documentation Methodology (SDM). The following discussions present a more detailed description and the status of each project. Additionally, Figure 1 depicts an overview of the interaction involved. COSMIC is in  $\equiv$ , COSACS in  $\therefore$ , MPC in  $\boxtimes$ , and other related applications which vary with the divisions are in  $\boxplus$ .

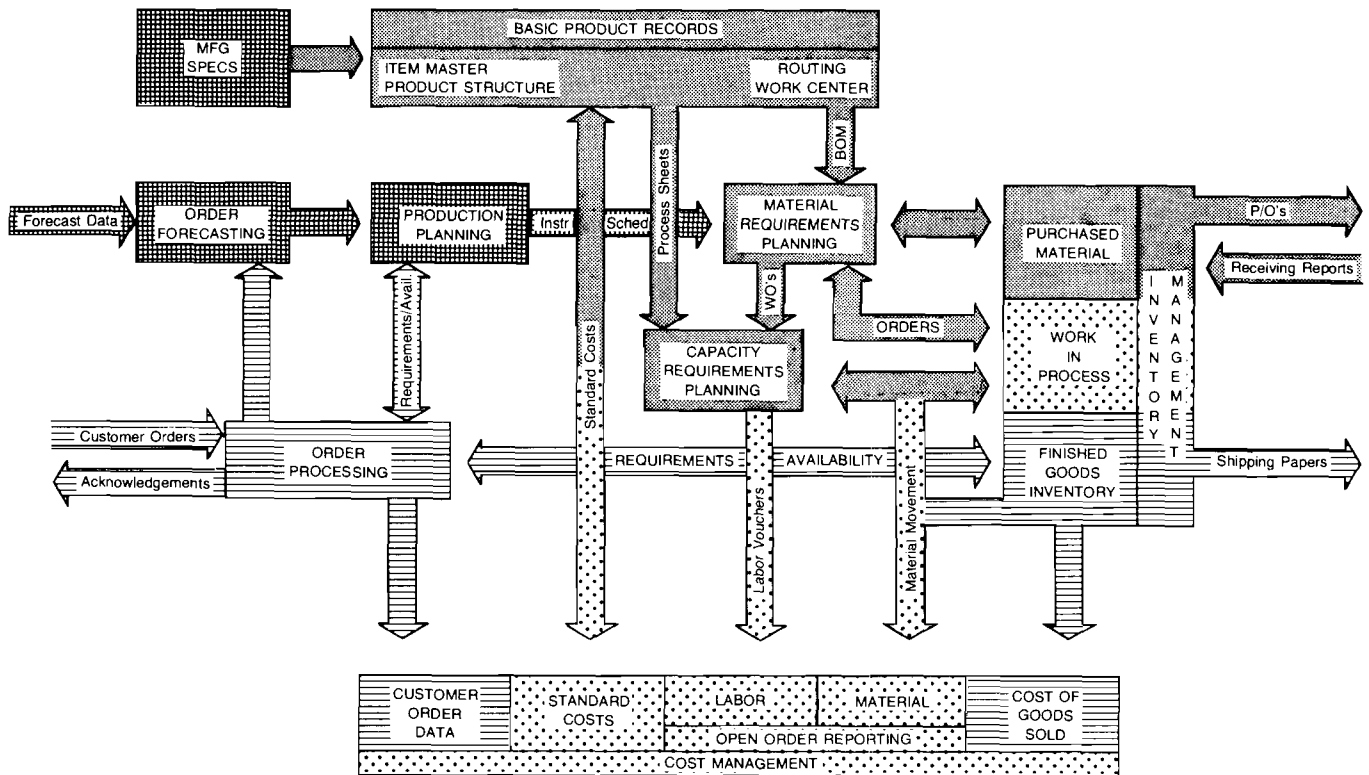


Figure 1. HP 3000 Manufacturing Systems Development

## COSMIC

The design of the COSMIC system began at Data Systems Division in November 1973. In order to provide an operational system on the HP 3000 which would improve the performance of factory order processing at DSD, the following specific objectives were defined for Phase I of COSMIC:

1. Define and maintain a comprehensive new data base using IMAGE/3000.
2. Transfer existing functions of order scheduling, completion schedule processing, and unit status recording as defined for 2100 COPS to the HP 3000 by programming using the new data base.
3. Implement enhanced capabilities for on-line order entry, systems explosions and on-line inquiry.
4. Provide an interface to HEART for initial order entry.

In July 1974, Medical Products (Waltham and Andover divisions) decided that COSMIC on the HP 3000 could offer a dedicated terminal-oriented Order Scheduling System, a desirable alternative to the continued development of their Order Processing System on the IBM/360. They implemented a modified version of COSMIC for Order Scheduling, and interfaced their existing FGI/Production module on the IBM/360 to COSMIC on the HP 3000.

The commitment by these two divisions to share system development in factory order processing formed the basis for the Corporate decision to provide resources to support continued development of COSMIC. The *Corporate Factory Order Processing Support Project* began in the fall of 1974.

The Corporate development efforts have been to provide modules which support functions which are common to several HP manufacturing divisions.

The COSMIC System includes the following subsystems:

### Order Entry

The subsystem provides the using division with a data base containing HEART and IOS order data, and can provide an explosion of the items ordered into the components which can be booked and built by the division. Edits are also done so that exceptional orders can be pointed out.

### Order Documents

This subsystem, which produces the order documents and formatted on-line inquiry furnishes the division with information about the orders after they have been edited and tailored to divisional specification.

### Shipment Interface

The purpose of the subsystem is to update the data base when an item has been shipped, and to notify HEART of the shipment as required. Flags were set at order entry time to enable the program to tell the shipper what information is needed for the shipment of the item to HEART.

### Order Exit

The purpose of the order exit subsystem is to insure that all HEART orders which have been marked in the Shipment subsystem as shipped have been billed by HEART and to purge completely billed orders on a periodic basis.

### Order Acknowledgement

The Order Acknowledgement subsystem provides for the acknowledgement of customer orders in the COSMIC data

base and automates the interface with HEART for acknowledgement to the customer.

### **Completion Schedule Processing**

The purpose of this subsystem is to establish runs, along with their scheduled start and end dates and the quantity of product which is going to be built. The planned availability which is thus derived can be used for the booking of orders.

### **Unit Status**

The Unit Status subsystem provides for tracking units from planned to shipped status.

### **Order Scheduling**

The Order Scheduling Subsystem provides for the booking of requirements (orders) to availability (planned and actual).

There are five facilities currently operating with various COSMIC subsystems: Data Systems, General Systems, Medical Products (Waltham/Andover), and Boise. San Diego Division and AMD are currently defining their respective objectives for a factory order processing system. This process will help these divisions determine which subsystem of COSMIC will help them meet their needs.

Although COSMIC development preceded the adoption of Segmented Documentation Methodology, the first five subsystems described above have been packaged and documented using SDM. The SDO has been used to give an overview of the system and describe possible levels of implementation. The SES contains brief descriptions for each section and references appropriate sections of the SIS. The SES is also used to relate sections of the SIS to each level of implementation. For the five subsystems, the SIS, a User Guide and some example Operations Guide data have been completed.

Installation support is one of the objectives of the Corporate COSMIC Project. This support is for investigation and/or implementation. Another objective is the on-going maintenance of subsystems which interface with HEART (for each official HEART Release). Further development is in progress:

- Use of the MPC System Basic Product Records data base as a source of product data for requirements generation
- A COSMIC Accounting Module to include Shipment Analysis and Cost of Goods Sold
- Enhancement of the Shipment Interface Subsystem
- Packaging of a basic Unit Status Subsystem
- Packaging of a basic Completion Schedule Processing Subsystem
- Planning of a closed-loop test system between HEART and COSMIC

Also in the future for the project are exception reporting, non-serialized availability, and an interface to the other HP 3000 systems to provide FGI information for the completion of runs.

The Corporate project team includes *Barbara Jacobsen*, *Nancy Piercy*, and *Jim Hill*.

### **MPC**

In May 1974 Data Systems Division completed a pilot project on the HP 3000 to maintain inventory balances and backorders. The system, called PINCO, was successful enough for the users to request enhancements to it. BAEDP got involved and, with the help of the Data Systems materials department, defined an expanded project that incorporated order tracking, dock-to-stock inventory control, and Accounts Payable interface. This project was completed as scheduled in July 1975 at Data Systems and formed the base for the project now known as MPC.

The Medical Electronics Division in Waltham became the sponsoring division for MPC, and thus responsible for a design to meet their requirements and the subsequent implementation in their facility. MPC has been broken down into four modules or phases. Phase I consists of a Basic Product Records data base and its maintenance. Phase II is PINCO plus an enhancement called Allocations. Phase III is a Net Material Requirements Planning function. The last phase, Phase IV encompasses Shopfloor Control Job Tracking, and Capacity Requirements Planning. Each phase is being documented for SDM starting at the SES level.

### **Phase I — Basic Product Records**

This subsystem consists of maintenance programs and basic reports for the

Item Master,  
Product Structure,  
Work Center, and  
Standard Routing files.

The SES and SIS documents have been completed and published for this phase. They describe the external and internal specifications for the core system that BAEDP has produced. All coding has been completed and tested for this phase.

Phase I is scheduled for implementation in Boise in June of this year. MED is scheduled for implementation later in the summer, and GSD, Singapore, Germany, and San Diego are considering the system.

Phase I provides data that is used by COSACS for standard costing and variances and by COSMIC for definition of "systems".

### **Phase II — Inventory Control**

Two previous Corporate Information Systems Newsletter Articles (May 1975 and Sept. 1975) describe the PINCO subsystem. In brief, it consists of an open order file, balance-on-hand control, and the creation, filling and maintenance of back orders. The major addition for MPC is an allocation file which consists of all issues which are scheduled to take place in the next 3 weeks. This includes pull decks, unplanned issues, and Bulk Order System IOS's. It can be used to detect pre-shortage conditions and as direct input to the MRP



subsystem. Five divisions have *installed* PINCO — GSD, DSD, MED, Data Terminals, and Boise. Two divisions, MED and Boise will install Allocations this summer. Germany is scheduled to install PINCO in June 1976.

A complete SES and SIS are available for Phase II (including allocations) describing the core system which BAEDP has.

Phase II automatically provides material accumulation data and information on opening and closing of production work orders to COSACS.

### **Phase III — Net MRP**

This phase coordinates the bills of material from Phase I, then pulls pending (allocations), order and inventory positions from Phase II with a master schedule to provide a net material requirements plan. It does Action Reporting by exception, i.e., if no action is required for a part as a result of an MRP cycle, no notification will be made to the controller. It can be run as often as weekly if desired.

An SES has been published for this phase and an SIS is scheduled for completion in June 1976.

Boise division will install Phase III in September 1976.

### **Phase IV — Capacity Requirements Planning**

Phase IV has two major features. It will handle tracking and dispatching in an on line environment. All movement between work stations, whether standard or rework, is reflected through a terminal. This movement automatically makes the job available for selection at its next operation. Data is compiled and displayed to allow a dispatcher to make an informed decision as to which job to select next. The second feature is time-phased workcenter loading with input/output control. This will display both firm load from open orders and planned load from suggested orders emanating from MRP.

An SES is scheduled for completion in June 1976 and the SIS for August 1976. Inquiry regarding Phase IV has come from the Boise, Data Systems, San Diego, and Medical Electronic divisions.

### **COSACS**

In November, 1975, a project team was formed at Boise Division to develop a COSt ACcounting System (COSACS) on the HP 3000.

Intended for use by any new or existing HP Division, COSACS is incorporating many of the features presently implemented in COORS. The system is designed to interface with the MPC system and a modified factory version of the Corporate Uniform Accounting System (CUAS). It is designed for only formal billing relationships. The system will not handle process accounting.

Upon completion of the project, it is anticipated that Boise will be totally independent of BAEDP with the exception of the EMPLOYEE and HEART Systems. One of the main objectives of COSACS is to use on-line terminals for data validation and information because it will eliminate much of the

timing problems which occur when invalid data is rejected and must be returned to a division for correction and then resubmitted in a later batch.

All of the initial design was completed using the Segmented Documentation Methodology (SDM) package. The System External Specifications (SES) were released in April.

A Standard Coding Structure (SCS) will be used throughout the system and consists of the following fields:

- Entity
- Sub-Entity
- Department
- Account
- Sub-Account
- Product-Type
- Product-Line
- Sub-Product Line

Scheduled for completion in February 1977, the project encompasses the following subsystems:

#### **Workorder Subsystem**

The Workorder subsystem will maintain the COSACS data base, accepting opens and closes for production workorders directly from the PINCO subsystem of MPC. Non-production orders may be input on-line. The COSACS files reside on an IMAGE data base.

#### **Labor Subsystem**

Initial input to the Labor subsystem will be keypunched vouchers. When the MPC capacity subsystem is implemented, it will feed the Labor subsystem directly. A later phase of COSACS is expected to automatically generate clock cards which will feed the Payroll System. On-Line corrections may be made to the Labor Suspense File which holds invalid records.

#### **Closed Order Subsystem**

This subsystem will access both the COSACS data base and the MPC Bill of Materials Processor to create closed workorder reports for labor and/or material charges. It will automatically generate six labor, material and overhead variances as input to the Audit Detail. Future enhancements include variances by product line or subproduct line.

#### **Material Subsystem**

The Material Accumulation subsystem will be fed directly by the PINCO subsystem. All workorder-related charges will be accumulated on the Order Summary File. Material received against an Internal Order or Purchase Order will be accrued at standard when received at the dock, and Accounts Payable will relieve these accrual accounts upon receipt of an invoice. On-line corrections may be made to the Material Suspense file which holds error records.

#### **Standard Cost Subsystem**

This subsystem will compare actual times from the COSACS data base against standard times contained in the MPC Bill of Materials Processor for use in setting accurate time standards on the Standard Routing File. It will then use this data along with data from the Item Master, Structure File and Work-center to implode costs from component-level to

parent-level. Standard Costs may be generated by low level code, by part number, or for all parts.

**Factory Uniform Accounting System**

The present Corporate UAS system includes an Accounts Payable system, Transfers, Journals, Depreciation, General Ledger and Management Reporting. It is a system converted from IBM hardware for use on the HP 3000 by Sales Offices.

In order to effectively interface with this package, team members will be responsible for modifying the system to accept Audit Detail records from the COSACS subsystems and to keep a history and provide reports of the Audit Detail files. The Validity file will be modified to reside on IMAGE data base for validation of all elements of the SCS. The Accounts Payable, Transfers and Journals subsystems will be modified to validate orders and update the COSACS files for workorder-related transactions. A/P and Transfers must provide for Purchased Part Price Variance records and reports; and for adjustment to accrual accounts.

The project team includes *Gary Atkins, Karen Blue, Kathy Krewer and Glen Lowry* from Boise; and *Barbara Jacobsen, Francoise Mayle, and Richard Bartel* from BAEDP. In addition, *Bruce Smith* from GSD, *Bruce Chadwell* and *Jim Rittmueller* from BAEDP are working on the Factory UAS Subsystems.



**SERIES II SALES OPPORTUNITY**

*By: Bob Ingols/GSD*

*Doug McArthur*, High Point, has another 3000 installed in his territory, this one at Schoffner Industries, a truss designer and manufacturer.

There may be a similar manufacturer in your area as trusses are generally manufactured locally because of the difficulty in transporting them.

The 3000 system does all their business applications and is used for truss design. Drawings of trusses are plotted on a Cal Comp plotter.

We replaced an IBM System/3 Model 10 whose biggest handicap was the lack of multiprogramming. DG Eclipse was a major competitor but our RPG language proved to be more capable than DG's, according to Schoffner's programming manager. In addition ease of RPG conversion helped win this sale.

So check your local listings for similar companies. Schoffner can be used as a good reference.

**SPRING RAINS EDUCATIONAL ORDERS!**

*By: Chris Doerr/GSD*

There was a deluge of educational sales during the spring months of March, April, and May. Some eight 3000 systems were sold, along with 10-2000 systems and 3-2000 up-grades. We're looking for an even better, wetter summer!

CUSTOMER	EQUIPMENT	RESPONSIBLE F.E.
Educ. Service Center Region X	2-2000 Access	Dave Head/Richardson
Wayne County I.S.D.	2000 Access	Barry Pehoski/Farmington
Columbia Union College	3000	Jim Banisch/Rockville
Multnomah County	3000	Rick Baker/Tualatin
Univ. of Illinois	2000 Access	Ray Vanderhulst/Skokie
Philadelphia Schools	2000 Access	Crane Hertz/King of Prussia
Ohlone College	2000 Upgrade	Dick Burkhardt/Santa Clara
Furman University	3000	Doug McArthur/High Point
Willamette Univ.	2000 Upgrade	Rick Baker/Tualatin
Virginia Polytechnic Inst.	2000 Upgrade	Doug McArthur/High Point
Instituto Tech. de. Regionale	2000 Access	Mexico
Adams Co. D.P. Cooperative	3000	Ron Johnson/Englewood
Univ. of Wisconsin - LaCrosse	3000	Barry Pehoski/Farmington
Stark Co. Dept. of Education	2000 Access	Bill Payne/Cleveland
Allen Hancock College	3000	Bob Ulery/Airport
Conestoga College	3000	Bruce Haskett/Toronto
Prince George's Co. Board of Education	3000	Jim Banisch/Rockville
Franklin Institute	2000 Access	Jim Banisch/Rockville
Virginia University	2000 Access	Ed Oakley/Richmond
Jefferson Co. Public Schools	2000 Access	Ron Johnson/Englewood



**IMPORTANT ORDER PROCESSING NOTES**

*By: Sharon Bradley/GSD*

Lately, some problems have arisen in GSD's order processing which you can help us solve. To help expedite your orders, please make note of the following list of points. Hopefully, by implementing these rather small procedures, most of our problems will clear up.

- All 3000 add-on orders must have the original system's serial number transmitted in the special instruction box.

With this number, we can verify the compatibility of the old equipment with the new add-on.

- Again, in the special instruction area, please supply any "special delivery problems". For example, list the obstacles that would give the delivery people difficulties like steps, second-floor lift ramps, hydraulic tail gates, and small elevators.
- If your customer requires a special carrier, please specify.
- At the time of purchase from your education customer, please obtain a signed *license* agreement for the appropriate software. This will cut any delays in shipments of your software. (This procedure applies only for educational software packages.)

## Competition

### IBM INTRODUCES THE SYSTEM 3/15D

by: *Chris Forester/GSD*

IBM's own GSD announced the System 3/15D at the end of June "in response to user demand for increased on-line and remote processing capabilities" (COMPUTERWORLD 6/28/76). The 3/15D is IBM's largest System 3, replacing the 15C at the top end of the product line.

The 3/15C is IBM's old top-of-the-line System 3 machine, offering up to 256K bytes of MOS memory, up to 164 megabytes of disc and an operating system called "SCP" (System Control Program). SCP controls a two memory partition environment on the 15C. An optional component of the operating system called "CCP" (Communications Control Program) allows multi-terminal use in one partition (thereby creating subpartitions). These terminals can only be used for data entry or system commands. Please refer to your System/3 Replacement Program Training Manual for further details on the entire System 3 line. In addition to the 15C and 15D, IBM offers the 15B. The 15B is identical to the 15C but the 15B has a maximum memory capacity of only 128K bytes.

All information we have been able to obtain here at HP indicates that the 15D is a software enhanced version of the 15C. Although some instruction times have been cut in half (the 15D fetches 2 bytes per machine cycle time, the 15C fetches only 1), IBM states that there will be no improvement in response time or throughput with the 15D. In addition, all applications programs written for the 15C have to be recompiled to run on the 15D.

There are three things to emphasize when evaluating the 15D as a replacement for the 15C:

1. **Third Memory Partition.** This third partition allows a concurrent third task to reside in main memory. The 15C had only two partitions and therefore only two concurrent tasks at most. IBM admits that when the first two partitions are heavily used, the third partition should only be used for low priority work.
2. **Added Disc Capacity.** The addition of the Model 3344 disc drive to the system 3/15D pushes the maximum available disc storage to 506 megabytes. The maximum capacity of the 15C is 164 megabytes. IBM will offer four disc configurations with the 15D: 101.2, 151.8, 202.4, and 506.2 megabytes. The 3344 is a fixed-media disc with higher data density than IBM's earlier discs; delivery of these discs will be later than the first 3/15D domestic shipments which are scheduled to commence in December 1976.
3. **Prices.** The upgrade price for a 160K 15C processor to a 15D is \$7,440. When comparing monthly charges between the 15C and 15D processors, the 15D averages \$200 higher per month. The customer is therefore getting the third partition and other software enhancements for a reasonable price. There is a kicker . . . customers upgrading are "encouraged" to increase memory by a 32K increment to handle the new capabilities; this additional memory costs the customer another \$200 per month.

The 3344 disc costs \$575 more per month than the older 3344's (under MAC).

IBM has released quite a few of what they call "major" software enhancements with the 15D. However, the 15D still falls far short of the capabilities of MPE II on the 3000 Series II. Rather than dividing up memory and stuffing parts of programs into fixed memory partitions, MPE uses a different approach. MPE divides up programs into segments and tailors the amount of memory required for each program. The method employed by MPE is more efficient. Memory partitioning (as employed by the S/3) often results in wasted memory. If a program does not fill an entire partition, the unfilled portion is wasted. MPE segments the program such that memory resources are not wasted and certainly can have more than three partitions.

The main marketing thrust of the 3000 Series II against the System 3 remains unaffected by this introduction. IBM still cannot offer terminals operating in on-line program development on the System 3. "The three A's" of Accountability, Accuracy and Accessibility still show the superiority of the 3000 Series II over the System 3.



**Price of typical System 3/15D configuration vs 3000 Series II Mod 7**

System 3/15D System Component Description		March '76 Price List	
Required		Purchase Price	1 Year Rental
Yes	CPU (192K byte)	133,971	3,659
Yes	System Console (1920 char)	5,015	161
Yes	Discs (101.2 megabytes)	40,400	1,264
No	Mag Tape (1600 BPI)	33,370	1,023
Yes	Line Printer (600 LPM)	46,210	1,254
Yes	Card Reader/Punch	25,050	542
	Software (Assembler, Cobol, RPG & Utilities)		378
	<b>Total</b>	<b>284,016</b>	<b>8,281</b>

3000 Series II, Model 7 includes:  
 CPU (192K bytes), System Console,  
 2 47 megabyte Discs, 1600 BPI Mag  
 Tape, MPE, RPG, Cobol, IMAGE/  
 QUERY

	Purchase Price	5 Year Lease
3000 Series II, Model 7 includes:	150,000	2.125% of purchase price
Line Printer	19,000	
Card Reader/Punch	17,500	
<b>Total</b>	<b>186,500</b>	<b>3.963</b>

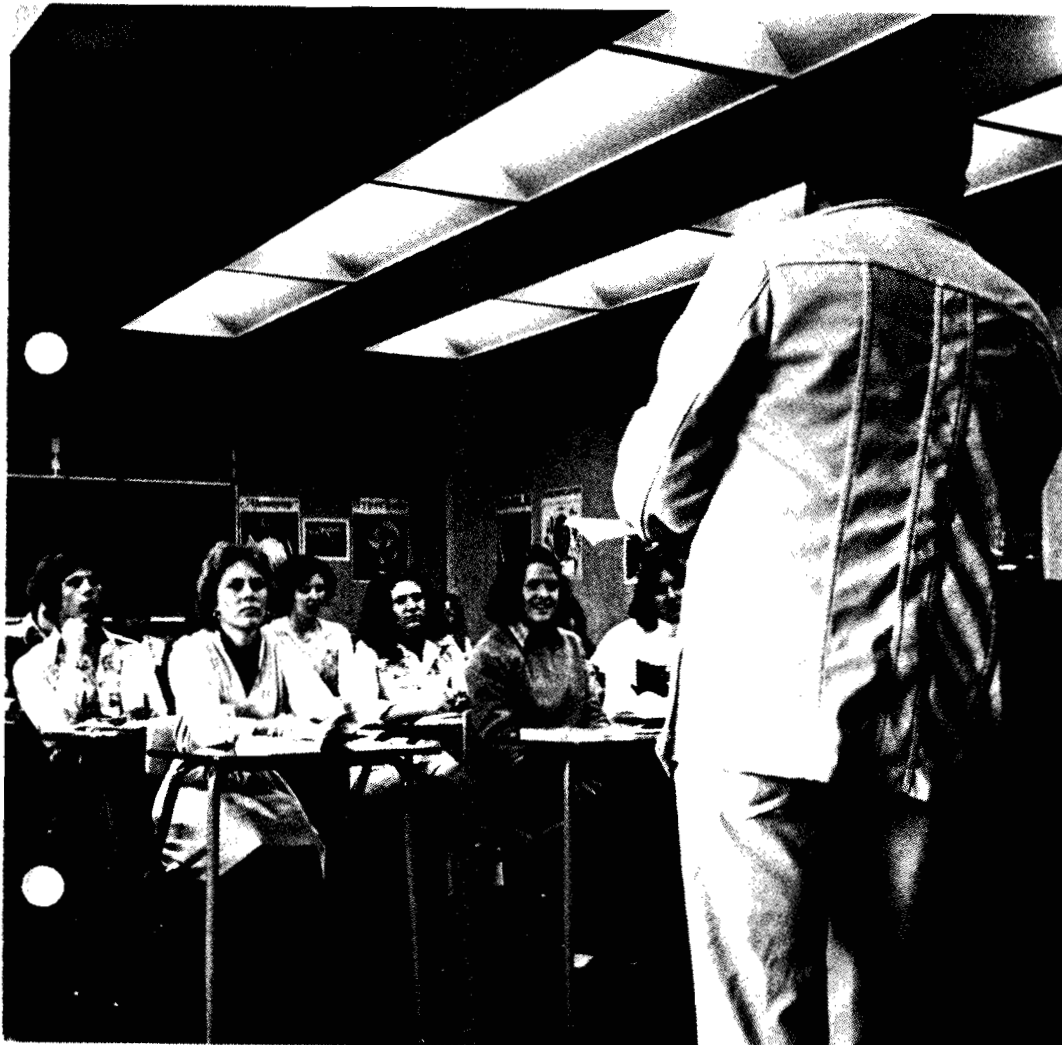
The 15C has been effectively "priced-out" of the market. Because the 15D processor is only \$200 more than the 15C, very few 15C's will be sold unless IBM reduces 15C prices.

**GOOD SELLING!!!**

**Optical Mark Readers  
 Provide Low Cost  
 Data Entry Into An  
 HP3000 Computer System.**

*Continued from  
 Edition 10/76*

**Applications of  
 Hewlett-Packard  
 Computer Systems**



# HP GRENOBLE NEWS

## LOOK FOR THOSE PRESS RELEASES

By: Bernard Guidon/Boise

Computerworld, one of the major computer industry newspapers, had lately published a special issue dedicated to data entry. Of course, Optical Mark Readers received the coverage due to their case, flexibility, efficiency and cost saving.

But when you talk Optical Mark Readers you have to speak

about Hewlett-Packard and 7260A!!!

Two neat applications of HP Optical Mark Readers (OMR) are described in this issue and point out the benefits of the OMR's as remote data entry devices.

Don't be surprised to receive calls on OMR's and don't hesitate to sell them. We have a great customer base to help you out!

JUNE 28, 1976  
DATA ENTRY

PAGE S/6

 COMPUTERWORLD

## Eliminates Much Paperwork

# Mark Reader Net Aids Insurance Firm's Accounting

CUPERTINO, Calif. — A nationwide data collection and communications network of optical mark readers has helped at least one insurance company here meet its cash accounting needs.

The National Life and Accident Insurance Co. is using more than 200 Hewlett-Packard Co. (HP) Model 7261A optical mark readers to eliminate the time-consuming accounting operations previously performed manually in its field offices.

National Life ranks among the 20 largest insurance companies in the U.S. with 254 district offices in 27 states. These district offices communicate directly with the home office in Nashville, Tenn., supplying data on the transactions conducted with the company's 8 million policyowners.

In the past, this accounting operation was performed manually at the end of each month. Throughout the month, each agent recorded his customer transactions in a large collection book, which also served as the policyowner premium accounting record for the company. Col-

lections from 50 to 130 accounts were recorded daily in this way by the salesman.

At the end of each month, the agent was obliged to compile these numerous transactions and balance his accounts. This process not only required several hours, but the agent had to recall numerous transactions which occurred during the month, leaving National Life with the difficult task of making important management decisions from manually derived information.

This problem has been solved with the installation of field communication stations in each of the National Life and Accident offices. These stations consist of an HP Model 7261A optical mark reader interfaced to an "intelligent" communications terminal, according to L.H. Stevenson, director of data collection and communication systems.

"By using optical forms, this data collection system meets National Life's requirements for a simple, versatile and accurate data entry tool. It has allowed us not only to improve the month-

ly reporting, but also to establish a daily accounting and record maintenance system," Stevenson said.

A computerized system located at the home office prints optical sales and service documents that include policyowner information in both visual characters for the agents' use and binary codes readable by the machine.

### Two Forms Used

Over 90% of all National Life's transactions require the use of only two different forms, the weekly premium and monthly account documents.

These two forms are printed under computer control to include the name and address of the policyowner, details of up to nine weekly or monthly policies, total account premium, a calendar of 36 weekly or 12 monthly due dates and an individual account number.

When the agent collects an account premium, he enters a pencil mark on the account document calendar to indicate the week or month through which premiums are paid. After the agent has visited his policy-

owners to collect premiums, he delivers the optical cards, along with the payments, to the district office. There the cards are read through the optical reader into the terminal.

Each district communication station is equipped with a mark reader and an intelligent terminal with cassette storage. The terminals communicate with the home office data center through telephone Wats lines.

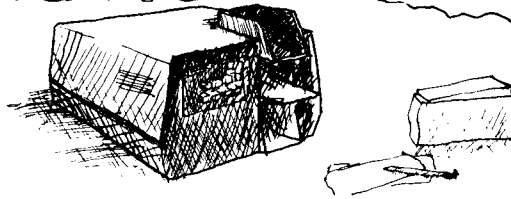
### Unattended Operation

At the end of each day, with all transaction data stored on cassettes, the terminal is set for unattended operation. Early in the evening, the home office data center automatically calls each district office in turn, activates the terminal and instructs it to transfer all data on the cassette. The computer then uses this information to update company account records.

Before morning, the data center again calls the district offices and transmits totals for each agent's collections of the previous day. Any discrepancies between the net-updated total and the agent's net deposit is tagged with error messages.

Account documents are then returned to the agents to be used for reporting future collections. When all premiums on a due date calendar have been reported, the document is automatically replaced by the home office.

# Optical Mark Readers Help States Meet Report Regulations



BOISE, Idaho - A Maryland vocational education research group is using optical mark readers both to help state agencies meet government report regulations more efficiently and to provide students with practical data processing experiences.

Ten Hewlett-Packard, Co. (HP) 7260As are associated with HP Model 2640 CRT terminals and HP Model 9866A thermal printers in remote station configurations located in school districts throughout the state.

The heart of the remote job entry (RJE) network is an HP Model 3000CX computer, installed in the Anne Arundel County Public School District near Baltimore.

The system was purchased as part of a research project entitled Administrative Information Management System (Aims), according to Gary Q. Green, director of

the Maryland Research Coordinating Unit for Vocational-Technical Education (MRCU).

The purpose of the project is to test alternate ways to help agencies comply with the large amount of information required by the federal and state governments, while allowing hands-on experience for students.

Under supervision of state vocational education agencies, every school district in the U.S. must complete massive federal reports.

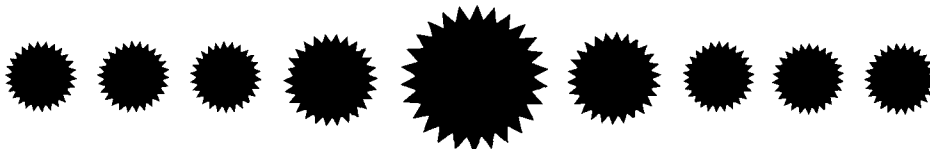
In attempts to reduce the cost and time expended, a few states have tried batch processing, but in most cases these efforts have been unsuccessful because of slow turnaround times. The MRCU decided upon a research project to find out if optical forms could provide the ease and

versatility necessary for an on-line system.

The Aims system also processes data on vocational education students received directly from the remote stations. The key operating element in this operation is the HP Model 7260A optical mark reader.

The program is based primarily on the use of easy-to-complete optical forms. Now, 123 characters per student can be collected for a cost of 2.2 cents.

The HP 3000CX computer edits the information and compiles it into a final printout in a format acceptable to the Federal government. Using the Model 3000CX system significantly reduces forms handling and processing costs, Green said.



## EDITOR'S NOTE:

For those readers who are not part of the CSG Field Sales and Service Force, this is your last opportunity to ensure that you remain on the mailing list for the CSG Newsletter. (Please see page 24 of the last issue if you are uncertain whether or not you still need to fill out the form below.)

Yes, I have a legitimate need to continue receiving the Computer Systems Newsletter. Please retain my name as printed below.

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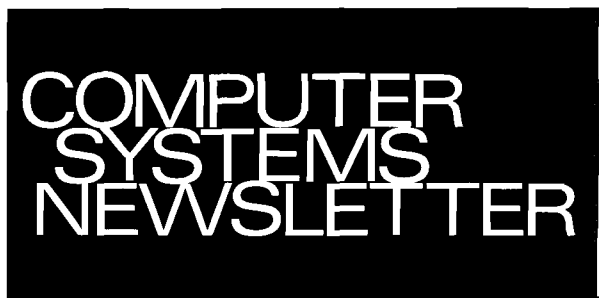
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