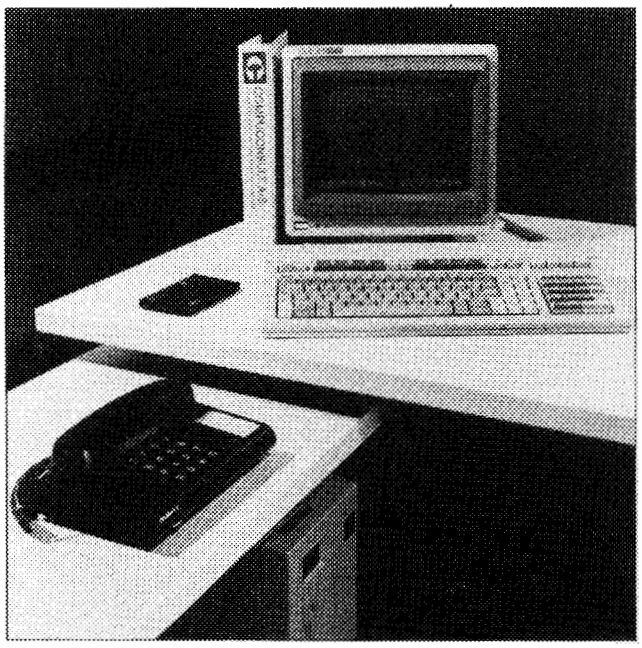
CROSSTALK Journal of Hewlett-Packard Technical Computer User Groups

Word processing available for the HP 1000

Long awaited by the HP 1000 community, word processing is finally available for HP 1000 systems.

CCWORD/1000 is a softkey-driven word processor running on the HP 1000. The word-processing system includes all common facilities from dedicated word-processing equipment including proofreading and automatic hyphenation.



CCWORD/1000 offers full-featured word processing for HP 1000 systems.

CCWORD/1000 is tailored specifically for the HP 1000. The word processor gives you the possibility of running other programs from the package, allowing you to import the results from these executions to the word processor. CCWORD/1000 has a special interface to the MATH/1000 spreadsheet, which makes it possible to include spreadsheet results for further processing. Furthermore, CCWORD/1000 can import and export EDIT/1000 files.

In addition to normal word processing, the package is also a powerful tool for people documenting programs on the HP 1000 — the package includes a screen reader capable of importing screens generated by other programs, including field enhancements and function key labels to a document.

CCWORD/1000 supports the use of multiple alternate character sets. This feature makes it possible to write mathematical equations (see box below).

Stoke's Law

$$\Gamma = \oint v_i dx_i = \int_A 2\omega_i dA_i = \int_A \text{rot } \vec{v} \bullet d\vec{A}$$

Triangular Wave as Sines

$$S = \sum_{n=1}^{\infty} a_n \cdot \sin \frac{n\pi}{l} x$$

The package also allows you to generate multicolumn documents. CCWORD/1000 was designed with the HP LaserJet printer as principal output device. Therefore, the package contains commands for font selection and for background shading which makes forms generation possible. Device handlers for a wide range of printers are included. It should be noted that CCWORD/1000 has extensive national character support with which you may write, for example, German letters from a US terminal and use the full keyset of various national keyboards.

CCWORD/1000 is available for RTE-A and RTE-6VM systems with B or later MUX. System documentation is currently (February 1986) available in English and French; German and Scandinavian versions are under preparation.

In the US and through a worldwide dealer network, the package is distributed by *Corporate Computer Systems, Inc., 33 West Main Street, Holmdel, NJ 07733, USA, phone (201) 946-3800, telex 642672 ccs holm.*

CONTENTS

The Business Consultant — a whole new idea in calculators

Hewlett Packard Australia introduced a whole new idea in calculators when it unveiled the HP-18C Business Consultant professional calculator.

The HP-18C Business Consultant calculator communicates with a new HP printer via an infrared light beam. The calculator, designed for business professionals, provides user-defined solutions without the need for programming.

The Business Consultant is ideal for you and the business professionals who are your customers. It uses softkeys and built-in menus to make solving standard business problems a snap. And it introduces an exciting new formula solver function that lets you customize the calculator to your individual needs. Simply provide the Business Consultant with all but one of the values in a formula, and it solves for the unknown.

The Business Consultant's revolutionary formula solver allows you to define problems specific to your work as ordinary equations — and then solve them in a flash.

Using the formula solver, you can store your formulas in your Business Consultant, then calculate and recalculate with them using softkeys.

The Business Consultant solves everyday business problems using its built-in functions for finance, summing and number lists, mathematics, general business, statistics, and time and appointments.

Its "clamshell" design houses two easy-to-use keyboards. The alpha keyboard is separate from the numeric keyboard, so it's easy to express your formulas in words. For instance: PROFIT = (PRICE − VARCOSTS) × UNITS − FIXED COSTS.

Hardware features of the Business Consultant include:

- Innovative dual-keyboard format
- Three replaceable N-cell batteries
- 1.2 Kbytes of RAM
- Four-line by 23-character display
- 64-Kbyte ROM
- Infrared printer interface

A "Consultant Series" of application booklets provides specific solutions developed for marketing, small business, banking, direct sales, manufacturing, real estate, personal investment, and finance.

Solutions in each of these areas are tailored to the professional's needs. For instance, the Direct Sales Consultant booklet includes formulas for revising forecasts to reflect current market conditions, markup calculations, figuring quotes, figuring commissions, and cost of travel by car.

These booklets help you, and your customers, get the most out of the Business Consultant.

You can create permanent records of the information or analysis you're working with using the thermal printer (see photo) that will be available in 1986. This printer has a unique infrared interface that links it to the Business Consultant without a tangle of cords. It's powered by an optional AC adapter or four AA alkaline batteries for convenient portability.

Editorial:

I would like to tell you about a new company that you may be interested in. Argo Software Integration is a Melbourne based company that specialises in engineering software and 'enhancement' products for the Hewlett-Packard Series 200/300 computers.

As an Instrumentation and Technical Computer Systems Engineer at Hewlett-Packard, I was involved in configuring and writing software for signal analysis and data acquisition systems (instrumentation and HP85 and 200/300 computers). Last February I left HP and formed Argo.

Argo's main charter in life is the development and sales of engineering software and Series 200/300 'enhancement' products, as well as general software consulting.

It used to frustrate me that there was no software available for the Series 200/300 - at least in Australia. Over in America there are quite a number of companies that produce everything from special plug compatible hardware, to engineering, office automation and general utility software. Argo is now the agent for a selection of these companies, so that now people in Australia have easy access to them.

Actually that is not the main focus of the business. Whilst at HP I began a software package for predictive maintenance on rotating machinery. Using spectrum analysers you can measure the vibration at the bearings and other rotating parts. By monitoring the changes in the vibration 'signature' you can get a very good idea whether the machine will fail in the near future. This information is very important to maintenance engineers who like to plan their maintenance rather than having it forced upon them.

Argo now owns the rights to that software, known as the 'Condition Monitoring System' (CMS), and there are a number of sites in Australia and New Zealand. Soon it will be on sale in America, Japan and Europe (distributed through an American company).

Argo is also developing a package that is used to analyse distortion on the power supply. The software interfaces the Series 200/300 to spectrum analysers, waveform recorders, and data acquisition units. The operator can set up the software to collect as many measurements, from as many of the instruments, for any reason (one instrument being triggered; every 10 seconds; harmonic distortion level exceeded; etc.), as fast as he/she requires. All of the measurements can be analysed later in a number of different ways.

This package, called the Automatic Computer Aided Measuring System (ACAMS) is currently being developed and tested in Australia and will soon be on sale in Sweden and America.

If you have any interests in any of the areas described I would be more than happy to talk about it with you. In case you saw our ad. in a previous Crosstalk, we now have a new office address and telephone number.

Jason Tranter
Argo Software Integration P/L
Suite 4, 52 Bay Road,
Sandringham, Vic., 3191.
Tel: (03) 598 1366.

DESKTOP LIBRARY LISTING

Tony Stevens has prepared a listing of the contents of our library for those interested. The collection has grown to an extensive one and is useful for researching proposed equipment purchases etc. Also check there are not later revisions of the manuals you are using. There is no charge for the use of the library, so contact Tony on 541 6532 if there is anything you wish to borrow.

CODE #	SUBJECT	TITLE : H.P.D.C.U.G.V. Equipment Manual List.	DATE	L
13P-03	1360	52113A INTEGRAL/60 USER'S GUIDE	MAR-82	0
13P-01	1360	52113A INTEGRAL/60 USER'S GUIDE	MAR-82	0
13P-02	1360	52113A INTEGRAL/60 USER'S GUIDE	MAR-82	0
13Q-03	1360	QUICK REFERENCE GUIDE	MAR-82	0
17Q-01	1360	QUICK REFERENCE GUIDE	MAR-82	0
13Q-02	1360	QUICK REFERENCE GUIDE	MAR-82	0
13R-03	1360	REFERENCE MANUAL	MAR-82	0
13R-01	1360S	REFERENCE MANUAL	MAR-82	0
13R-02	1360S	REFERENCE MANUAL	MAR-82	0
19S-01	19C/29C	SOLUTIONS	-77	0
40P-01	6940B	OPERATING AND SERVICE MANUAL	JUN-79	0
85S-07	80	BUSINESS SOLUTIONS	FEB-81	0
85S-02	80	BUSINESS SOLUTIONS	FEB-81	0
85S-04	80	SOFTWARE DEVELOPMENT TOOLS	FEB-81	0
85S-03	80	SOFTWARE DEVELOPMENT TOOLS	FEB-81	0
85S-06	80	SURVEYING PAC	FEB-81	0
85S-05	80	SURVEYING PAC	FEB-81	0
85D-01	83/85	ADVANCED PROGRAMMING ROM POCKET GUIDE		0
85Q-02	83/85	POCKET GUIDE		0
85S-01	83/85	SURVEYING PAC		0
85F-02	85	BCD INSTALLATION AND THEORY OF OPERATION MANUAL	JUL-80	1
85I-01	85	I/O PROGRAMMING GUIDE	APR-80	1
85P-02	85	INSTALLATION AND THEORY OF OPERATION MANUAL	APR-80	0
85P-03	85	INSTALLATION AND THEORY OF OPERATION MANUAL	OCT-80	1
85P-01	85	INSTALLATION AND THEORY OF OPERATION MANUAL	JUL-80	0
85F-03	85	INSTALLATION AND THEORY OF OPERATION MANUAL	APR-80	0
85Z-02	85	INSTRUCTION SHEET (ROM DRAW)	FEB-81	0
85Z-01	85	INSTRUCTION SHEET (SYSTEM MONITOR)	MAR-81	1
85F-04	85	PERIPHERAL INSTALLATION INSTRUCTIONS	APR-80	0
85I-02	85	PERIPHERAL INSTALLATION INSTRUCTIONS	APR-80	1
85F-01	85	PRINTER INTERFACE INSTALLATION & OPERATION MANUAL	FEB-81	0
91P-01	9100A	OPERATING AND PROGRAMMING	JUN-68	0
91P-02	9101A	EXTENDED MEMORY OPERATING MANUAL	JUL-70	0
97Q-01	97	INSTALLATION AND OPERATION GUIDE	MAR-81	0
30F-01	9800	I/O EXPANDER	SEP-72	0
98L-01	9800 Series	EXCHANGE LIBRARY SOFTWARE CATALOG	JUL-82	1
45Z-01	9800 Series	DESKTOP COMPUTER APPLICATION IN INDUSTRY	FEB-79	0
98L-02	9800 Series	HP & HP+ SOFTWARE CATALOG AND SOLUTIONS	JUL-82	1
98F-05	98033A	BCD INTERFACE INSTALLATION AND SERVICE MANUAL	MAR-77	0
98F-04	98033A	BCD INTERFACE INSTALLATION AND SERVICE MANUAL	MAR-77	0
98F-07	98034A	HP-IB INTERFACE INSTALLATION AND SERVICE MANUAL	JUL-76	0
98F-06	98034A	HP-IB INTERFACE INSTALLATION AND SERVICE MANUAL	MAY-79	0
98F-03	98035A	REAL TIME CLOCK	APR-79	0
98F-08	98035A	REAL TIME CLOCK OPERATING NOTE	APR-79	0
98F-02	98036A	INSTALLATION AND SERVICE MANUAL	APR-79	0
98F-01	98046B	INTERFACE INSTALLATION AND SERVICE	MAR-80	0
98F-09	98046B	INTERFACE INSTALLATION AND SERVICE MANUAL	MAR-80	0
15Q-01	9815A	GUIDE	SEP-75	0
21S-01	9821	HP-PLOT/21 SOFTWARE CONVERSION GUIDE	NOV-77	0
25Q-03	9825	QUICK REFERENCE	SEP-80	0
25R-06	9825A	ADVANCED PROGRAMMING	JUN-76	0
25R-05	9825A	ADVANCED PROGRAMMING	APR-77	0
25Q-05	9825A	ERROR MESSAGES	DEC-76	0
25R-04	9825A	EXTENDED I/O PROGRAMMING	OCT-76	0
25R-03	9825A	EXTENDED I/O PROGRAMMING	OCT-76	0
25R-11	9825A	GENERAL I/O PROGRAMMING	JAN-77	0
25R-10	9825A	GENERAL I/O PROGRAMMING	JAN-77	0
25R-09	9825A	GENERAL I/O PROGRAMMING	JAN-77	0
25I-02	9825A	INTERFACING CONCEPTS		0
25I-02	9825A	INTERFACING CONCEPTS		0
25R-13	9825A	MATRIX PROGRAMMING	MAY-77	0
25R-14	9825A	MATRIX PROGRAMMING	APR-79	0
25R-12	9825A	MATRIX PROGRAMMING	APR-76	0
25P-01	9825A	OPERATING AND PROGRAMMING	APR-77	0
25P-02	9825A	OPERATING AND PROGRAMMING	MAY-80	0
25R-01	9825A	PLOTTER PROGRAMMING	JUN-76	0
25R-02	9825A	PLOTTER PROGRAMMING	FEB-70	0
25I-01	9825A	PROGRAMMING HINTS FOR SELECTED INSTRUMENTS	JAN-78	0
25Q-04	9825A	QUICK REFERENCE GUIDE		0
25R-08	9825A	STRING VARIABLE PROGRAMMING	JUL-76	0
25R-07	9825A	STRING VARIABLE PROGRAMMING	APR-77	0
25Q-01	9825A	SYSTEM TEST BOOKLET	MAR-76	0
25Q-02	9825A	SYSTEM TEST BOOKLET	MAR-80	0
25Z-01	9825A/S	DATA SHEETS	FEB-79	0
26P-02	9826	BASIC LANGUAGE REFERENCE	MAY-81	0
26P-01	9826	BASIC OPERATING MANUAL	MAY-81	0
26C-03	9826-90020	SUPPLEMENTAL Chapter 11	OCT-81	0
26C-02	9826-90020	SUPPLEMENTAL Chapter 12	DEC-81	0
26C-01	9826-90020	SUPPLEMENTAL Chapter 14	FEB-82	0
36F-03	9826/9836	98270F POWERFAIL OPTION INSTALLATION	JAN-82	0
36F-02	9826/9836	98270F POWERFAIL OPTION INSTALLATION	JAN-82	0
36I-01	9826/9836	BASIC INTERFACING TECHNIQUES	FEB-82	0
36I-03	9826/9836	BASIC INTERFACING TECHNIQUES	FEB-82	1
36I-02	9826/9836	BASIC INTERFACING TECHNIQUES	FEB-82	0
36P-01	9826/9836	BASIC LANGUAGE REFERENCE	FEB-81	1
36P-03	9826/9836	BASIC LANGUAGE REFERENCE	FEB-82	0
36P-02	9826/9836	BASIC LANGUAGE REFERENCE	JAN-82	0
36P-04	9826/9836	BASIC LANGUAGE REFERENCE	FEB-82	0
36L-04	9826/9836	BASIC LANGUAGE TRANSLATOR	FEB-82	0
36P-06	9826/9836	BASIC OPERATING MANUAL	JAN-82	0
36P-07	9826/9836	BASIC OPERATING MANUAL	JAN-82	0
36P-05	9826/9836	BASIC PROGRAMMING TECHNIQUES	FEB-82	0
36P-08	9826/9836	BASIC PROGRAMMING TECHNIQUES	FEB-82	0
36L-02	9826/9836	BASIC UTILITIES LIBRARY	JAN-82	0
36L-03	9826/9836	BASIC UTILITIES LIBRARY	JAN-82	0
36L-01	9826/9836	BASIC UTILITIES LIBRARY	JAN-82	1
36H-01	9826/9836	HPL OPERATING MANUAL & PROGRAMMING UPDATE	JAN-82	0
36H-03	9826/9836	HPL OPERATING MANUAL & PROGRAMMING UPDATE	JAN-82	1
36H-02	9826/9836	HPL OPERATING MANUAL & PROGRAMMING UPDATE	JAN-82	0
36B-01	9826/9836	MC68000 USERS MANUAL	DEC-81	0
36A-01	9826/9836	PASCAL LANGUAGE SYSTEM USER'S MANUAL	FEB-82	1
36A-02	9826/9836	PASCAL PROCEDURE LIBRARY USER'S MANUAL	MAY-82	0
36A-03	9826/9836	PASCAL PROCEDURE LIBRARY USER'S MANUAL	MAY-82	1
36F-01	9826/9836	POWERFAIL OPTION INSTALLATION	JAN-82	1
30S-01	9830	DATA BASE ROUTINES PACK	JUN-74	0
30R-01	9830	MATRIX OPERATION ROM	DEC-72	0
30Q-01	9830	SIMPLIFIED OPERATING INSTRUCTIONS	FEB-73	0
30P-02	9830A	OPERATING AND PROGRAMMING	MAR-76	0
30F-01	9830A	OPERATING MANUAL	JAN-75	0
35R-01	9835	ASSEMBLER DEVELOPMENT ROM	FEB-79	0
35Q-01	9835	ASSEMBLER LANGUAGE QUICK REFERENCE	MAY-79	0
35Z-01	9835	DATA SHEETS	SEP-78	0
45I-02	9835A/B	9845B/C I/O ROM MANUAL	FEB-80	0
45D-01	9845	DATA BASE MANGEMENT STATISTICS LINKAGE PROGRAM	APR-80	1
45Z-02	9845	DATA SHEETS	JAN-80	0
45G-03	9845	GRAPHICS PROGRAMMING TECHNIQUES	JUL-78	0
45G-01	9845	GRAPHICS PROGRAMMING TECHNIQUES	APR-78	0
45G-02	9845	GRAPHICS PROGRAMMING TECHNIQUES	JUL-78	0
45I-01	9845	I/O ROM PROGRAMMING	JUN-78	0
45D-06	9845	IMAGE/45 PROGRAMMING MANUAL	NOV-80	1
45D-04	9845	IMAGE/45 PROGRAMMING MANUAL	JUN-80	2
45M-01	9845	MASS STORAGE TECHNIQUES	MAR-78	1
45M-02	9045	MASS STORAGE TECHNIQUES	MAR-78	0
45P-01	9845	OPERATING AND PROGRAMMING	NOV-77	0
45P-02	9845	OPERATING AND PROGRAMMING	SEP-78	1
45B-06	9845	PROGRAMMER'S INTRODUCTION	JUL-78	0
45B-01	9845	PROGRAMMER'S INTRODUCTION	JUL-78	0
45P-04	9845	PROGRAMMING MANUAL	NOV-80	0
45D-07	9845	QUERY/45 USER'S GUIDE	JUN-80	1
45D-05	9845	QUERY/45 USER'S GUIDE	JUN-80	2
45Q-01	9845	QUICK REFERENCE	MAY-79	0
45B-07	9845	REFERENCE GUIDE	FEB-78	0
00P-01	9845/7245A	OPERATIONING NOTES	NOV-78	0
45P-06	9845/9835	PROGRAMMING LANGUAGE	JUL-81	0
45B-02	9845B	BEGINNER'S GUIDE	MAR-79	0
45B-03	9845B	BEGINNER'S GUIDE	MAY-79	0
45B-04	9845B	INTRODUCTORY USER'S GUIDE	APR-80	0
45P-05	9845B	OWNER'S MANUAL	MAR-79	0
45D-03	9845B/C	DATA BASE DESIGN KIT	JUN-80	2
45D-02	9845B/C	DATA BASE DESIGN KIT	JUN-80	1
45P-03	9845B/C	PROGRAMMING MANUAL	JUN-80	0
45B-05	9845B/C	USER'S GUIDE	JUN-80	0
45X-01	9845C	98770A SERVICE MANUAL COLOR CRT	FEB-80	0
62P-01	9862	PLOTTER	APR-72	0
71P-01	9871A	PRINTER OPTIONS 10,20,21 & 30 OPERATING MANUAL	NOV-75	0
72X-01	9872A	OPERATING AND SERVICE MANUAL	SEP-77	0
72P-01	9872A	PLOTTER PROGRAMMING	FEB-78	0
74P-01	9874A	DIGITIZER PROGRAMMING	OCT-78	0
74C-01	9874A	MANUAL CHANGES	JUL-78	0
75P-01	9875A	INSTALLATION AND OPERATING	FEB-79	0
75P-02	9875A	INSTALLATION AND OPERATING	FEB-78	0
76P-02	9876A	THERMAL GRAPHICS PRINTER		0
76P-04	9876A	THERMAL GRAPHICS PRINTER	FEB-79	0
76P-01	9876A	THERMAL GRAPHICS PRINTER	AUG-79	0
76P-03	9876A	THERMAL GRAPHICS PRINTER	APR-79	0
04P-01	9884A	TAPE PUNCH PROGRAMMING TECHNIQUES	DEC-78	0
95X-01	9895A	FLEXIBLE DISC MEMORY SERVICE MANUAL	JUL-80	0
99P-01	9915	OPERATOR INTERFACE	FEB-81	0
15Z-01	9915A	DATA SHEETS	MAY-81	0

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COMPACT NUMBER STORAGE

From Chris Simpsons desk come these routines for the efficient storage and retrieval of numbers to and from strings. Two versions are shown for 6 or 9 significant figures.

```
1000  ! Conversion of Numbers with 6 sig.digits from/to 4-char String
1010  !         or of Numbers with 9 sig.digits from/to 5-char String
1020  ! CRS - 10/06/86
1030  !
1040 Disp:  INPUT "No.=?",X
1050        X4$=FNCnv4$(X)                  ! to 4-char string.
1060        X5$=FNCnv5$(X)                  ! to 5-char string.
1070        DISP X,FNUnc4(X4$),FNUnc5(X5$),! Convart back to numbers.
1080        GOTO Disp
1090   END
1100  !
1110  !----------
1120 Cnv4: DEF FNCnv4$(N) ! Convert a 6 sig.dig.no. to 4-char string:
1130      S=SGN(N)                ! Sign of number.
1140      X=ABS(N)                ! Make positive.
1150      IF X<1.E-63 THEN RETURN RPT$(CHR$(0),4)! 'Zero'--->
1160      P=INT(LGT(X))           ! Calc. #powers of 10 (greater than units).
1170      X=PROUND(X*10^(5-P),0) ! Round to a 6 (significant) digit integer.
1180      X2=X MOD 65536          ! For 'Least significant' two chars..
1190      RETURN CHR$(128*(S<0)+64*(P<0)+MIN(63,ABS(P)))&CHR$(X DIV 65536)&CHR$(X
2 DIV 256)&CHR$(X2 MOD 256)
1200      !     (Sign of No: Power Sign: Power)&(HighByte)&(MedByte)&(LowByte)
1210      FNEND
1220  !----------
1230 Unc4: DEF FNUnc4(X$) ! Unconvert a 4-char string back into a number:
1240      X=65536.*NUM(X$[2])+256.*NUM(X$[3])+NUM(X$[4]) ! +Positive Number
1250      A=NUM(X$)               ! 1st Byte..
1260      P=A MOD 64              ! ..Low 6 bits = Power (=0 to 63);
1270      IF BIT(A,6) THEN P=-P   ! ..Sign of Power (7th bit);
1280      IF BIT(A,7) THEN X=-X   ! ..Sign of Number (8th bit).
1290      RETURN X*10^(P-5)       ! Number*Power (corr.for 6-digit integer).
1300      FNEND
1310  !
1320  !----------
1330 Cnv5: DEF FNCnv5$(N) ! Convert a 9 sig.dig.no. to 5-char string:
1340      S=SGN(N)
1350      X=ABS(N)
1360      IF X<1.E-63 THEN RETURN RPT$(CHR$(0),5)! 'Zero'--->
1370      P=INT(LGT(X))
1380      X=PROUND(X*10^(8-P),0) ! Round to a 9 (signif.) digit integer.
1390      X1=X DIV 65536          ! Higher order two bytes.
1400      X2=X MOD 65536          ! Lower order two bytes.
1410      RETURN CHR$(128*(S<0)+64*(P<0)+MIN(63,ABS(P)))&CHR$(X1 DIV 256)&CHR$(X1
 MOD 256)&CHR$(X2 DIV 256)&CHR$(X2 MOD 256)
1420      FNEND
1430  !----------
1440 Unc5: DEF FNUnc5(X$) ! Unconvert a 5-char string back into a number:
1450      X=16777216*NUM(X$[2])+65536.*NUM(X$[3])+256.*NUM(X$[4])+NUM(X$[5])
1460      A=NUM(X$)
1470      P=A MOD 64
1480      IF BIT(A,6) THEN P=-P
1490      IF BIT(A,7) THEN X=-X
1500      RETURN X*10^(P-8)
1510      FNEND
1520  !----------
```

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HP enters low-priced PC-CAD market; introduces DraftPro Plotter

Hewlett-Packard Australia today introduced it's first plotter designed specifically for the low priced PC-CAD market.

The new DraftPro plotter was developed for budget minded users such as small architectural and engineering design firms, small departments in larger companies and educational institutions.

The DraftPro is compatible with most personal computers including the IBM PC, HP Vectra PC and Apple Macintosh.

"Reliability at a low price is the key feature of the new eight pen DraftPro plotter," according to Keith Watson, HP Australasian PC Sales and Marketing Manager. "Both are achieved with design simplicity and rigorous environmental testing."

The product design incorporates plastic-injection moulding and VLSI electronics. This reduces the overall parts count and the number of potential failure points resulting from continual daily use. It also produces a product with no mechanical or electrical adjustments.

Stringent Environmental Testing

Environmental testing included operation of the plotter at temperature extremes of 0 and 55 degrees centigrade, subjecting it to a 25,000 volt shock, exposing it to a blow torch and jolting it with 50 times the acceleration of gravity.

"As more PCs enter the CAD market," said Watson, "HP sees tremendous opportunity among new users who cannot affort larger systems — and this includes large numbers that are currently without CAD.

"HP designed the low priced DraftPro to compliment the low price of PC-based CAD systems."

In addition to reliability, the new DraftPro plotter provides high quality, easy to produce output on architectural and engineering C/D-sizes and A1/A2 metric sizes.

Both first time and experienced plotter users can produce technical drawings with DraftPro, a personal computer, and any of the widely used CAD software packages — such as AutoCad, Anvil — 1000 and VersaCad — that support the new plotter.

"Though PC-based workstations are less expensive, they are not less professional," said Watson. High quality, multicolour drawing on paper, vellum or polyester film can be achieved with DraftPro's .0005-inch mechanical resolution and .2 percent accuracy.

Pen-sorting Capability

DraftPro also includes pen-sorting capability, independent of software, which allows the plotter to draw a full buffer of vectors for one colour before proceeding to another colour. This reduces plot time by minimizing the number of pen changes. The new device features 2g pen acceleration and 15 inches per second (IPS) pen speed.

An eight pen carousel that holds and automatically caps pens and also saves the user time. Pens are available in a variety of colours and in both liquid ink and fiber tip.

The plotter also has a simple paper-loading procedure, front panel controls that can be mastered in minutes, and industry standard HP-GL for user programming. An RS-232-C interface comes standard with the plotter. The HP-IB interface and the Japanese character set are available as plug in accessories.

Easy moving and space saving

The HP DraftPro plotter is easy to move and requires a minimum of space. It weighs 66 pounds (30 kg) and measures 44.9 inches (1,140 mm) wide by 20.5 inches (520 mm) deep by 40.6 inches (1,030 mm) high.

With the introduction of the DraftPro plotter, HP's line of drafting plotters has been expanded to four models — the D-size (A1) HP 7580B, the E-size (AO) HP 7585B, the roll-feed HP 7586B and the new low priced DraftPro unit.

Backed by a 90 day, on site parts and labour warranty, the plotter is supported by HP worldwide service, with availability of support for at least 10 years after purchase.

COMING EVENTS

JANUARY 12th, 1987:
RTEA System Manager — HP Melbourne
Series 200 Basic Op & Prog — HP Melbourne

JANUARY 19th:
Intro to Computer Concepts — HP Melbourne

FEBRUARY 2nd, 1987:
Vectra/Getting Started on 150 — HP Melbourne

FEBRUARY 5th:
Vectra Advancewrite — HP Melbourne

FEBRUARY 6th:
Lotus 1,2,3 — HP Melbourne

FEBRUARY 9th:
Intro to RTE — HP 1000 — HP Melbourne

FEBRUARY 12th:
Intro to RTE Prog — HP Melbourne

FEBRUARY 25th:
Series 300/500 HPUX Sys Admin — HP Melbourne

INTERNATIONAL USERS GROUP MEMBERSHIP

At its Annual Meeting, the Melbourne HP/1000 Users Group announced that it was about to become a full member of the International Association of Hewlett-Packard Computer Users (INTEREX). This will include a copy of the full contributed Library. The Treasurer of the Melbourne Group Norm Kay, (03) 544 0633, will be the holder of the tape and limited copies of software will be available for members to use, without the need to join INTEREX.

DraftPro Plotter (HP 7570) Specifications

Media

Paper, vellum and double matte polyester film.
Widths from 550mm to 640mm. Lengths from 400mm to 1000mm.
These measurements include A2/C/architectural C- and A1/D/architectural D-size media.

Margins

Expanded Mode	5mm (0.2 in.) on three edges; 31mm (1.2 in.) on the fourth.
Normal Mode	15mm (0.59 in.) on three edges; 39mm (1.5 in.) on the fourth

Pens

Fiber tip, disposable liquid ink and refillable liquid ink drafting pens. Eight pen carousel, automatic pen changing and pen capping.

Resolution

Addressable 0.025mm (0.001 in.)

Designing a low-priced PC-CAD Plotter with reliability

If the new Hewlett-Packard PC-CAD plotter has a much lower price tag than other drafting plotters, how can the design engineer or draftperson be assured that the new product will be just as reliable?

Philip J. Faraci, project manager for the DraftPro, said the major challenges were addressed in the design and testing phases. Reliability was safeguarded by reducing the number of parts while utilizing state of the art technology, quality control techniques and extensive testing procedures.

"In a plotter purchase, the customer expects the basic reliability of the device to be there — no matter what is added or taken away," Faraci said. "That's the whole design premise behind the DraftPro plotter — saving money by pulling parts together into more complex tools, making no trade-offs in writing quality and investing more money in research and development."

The DraftPro design team recognized the need to reduce combinations of several parts into single components, because with electromechanical devices such as plotters, there would be fewer chances of a breakdown.

"HP has performance verification variables that are checked as part of the production process," he said. "For example, as a product is produced, HP checks x-axis and y-axis friction, because friction is a good determination of whether or not the writing quality is good. It also is a good indicator of the problem parts."

Each individual part has a key margin or performance check, such as putting a sheet of media into the plotter and seeing how much extra weight can be hung on the sheet before it stops moving back and forth.

Other variables including backing levels through the machine, pen down time, pen force, belt tension, pen height and pinch wheel force. At each phase of design, these key product parameters are tested for performance on several plotters. Performance ratings are recorded during a three day period on a process-control variability chart. When testing is completed, HP engineers are able to see which parts vary more than others.

Parts with greater inconsistency then are designed to greater performance margins. Once a product is developed, it must be thoroughly tested for reliability through outside testing, lab testing or worst case "what-if" testing.

As a result, there is a 10-to-one reduction in parts between the new PC-plotter and the other HP drafting plotters, which are used for more sophisticated design tasks. Using injection moulding (a way to integrate functions mechanically into single parts), HP was also able to reduce manufacturing costs dramatically.

While reducing the part count, the design team also realised that some parts were too critical to the plotter's performance to simplify. Therefore, they borrowed these crucial and highly contained elements from existing HP drafting plotters.

"HP spent years perfecting it's grit system, which basically consists of a pinch wheel that forms an impression," said Faraci. "That technology is too important to the writing quality and overall performance of the plotter, so we didn't change it's design."

Designing for the more extreme case rather than the average is another way HP built reliability into DraftPro," said Faraci.

HP engineers determined the point at which a part started to fail under extreme use and then designed it to a factor of two, five or ten greater than that. HP also included process control variables on all parts, a feature new to plotters, according to Faraci.

HP's testing procedures include all three steps. According to Faraci, DraftPro underwent rigorous lab tests throughout the entire design process. The parts were subjected to simulated environmental strife including operation at 0 and 55 degrees Celsius; and exposure to 25,000 vol shock, 50 times the acceleration of gravity and extreme heat.

HP engineers can speed up the product's life equal to two years of customer use. Less than quality performance, not caught in the lab, is discovered in outside testing.

"An engineer is so close to the product that an objective third person, representing customer viewpoints, often can offer additional suggestions for improvement," said Faraci. "Reliability for the customer using CAD on a personal computer has been a major design objective with DraftPro.

"Even with price and part reduction, HP's design and testing procedures have developed a plotter with the low priced reliability that PC-CAD users need," Faraci said.

SPECIFICATIONS FOR SUBMISSION OF ARTICLES AND ADVERTISEMENTS

All material for Crosstalk should be sent to one of the addresses listed at right from where it will be forwarded to the co-ordinator for publication. Publication dates are subject to receipt of sufficient material. For specific details contact Derrin Johnson on (03) 895 2674.

ARTICLES: Articles should be typed with any diagrams and program listings in camera-ready form (Author's name, address and phone number should be included).

ADVERTISEMENTS: Display ads. should be in camera-ready artwork form. The printer may be instructed to layout ordinary typeface ads.

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HP1000 Users Group (Vic.)
C.S.I.R.O.
Box 160, Clayton,
3168, Vic.

H.P.D.C.U.G.V.
John Hedger,
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Screen	40204A OPT006	New
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