CROSSTALK Journal of Hewlett-Packard Technical Computer User Groups

JAN.-FEB. 1986

COMBINED MEETING A SUCCESS

The combined HPDCUGV and HP1000 Users Group meeting held at HP Blackburn was an enormously enjoyable event.

This meeting was well attended by members from both groups. Also in attendance were Paul Cooper and Graham Fraser representing the Pocket Portable Programmers of Melbourne Inc.

The meeting lasted well over 2½ hours thanks to the excellent presentations giving by HP's Managing Director, Malcolm Kerr and Alan McNamara from Laserform.

Following the formalities of the meeting, drinks and snacks were served in an adjoining room. This gave members of both groups the chance to interact with each other.

During this time, Melissa Toose from HP's Third Party Group was kind enough to demonstrate Vectra, HP's new Personal Computer.

All in all it was a very entertaining evening thoroughly enjoyed by those in attendance.

HP's Managing Director Malcolm Kerr addressing the meeting.

Members enjoying the post meeting refreshments.

CONTENTS

HP Computer Museum
www.hpmuseum.net

For research and education purposes only.

NEW PRODUCTS

HP Graphics Interface System for PMC/1000 introduced

HP Graphics Interface System (GIS/1000) was introduced in November 1985. GIS/1000 is a software package that allows the development and use of sophisticated real-time process graphics displays with HP Process Monitoring and Control/1000 (PMC/1000) applications. PMC/1000 is a prerequisite for using GIS/1000. GIS/1000 has an existing link to the PMC/1000 software and adds the following significant capabilities to PMC:

- Quick and easy development of custom graphics.
- Static and dynamic displays.
- Use of fast, large screen color monitor.

GIS/1000 will allow the user to develop displays which represent the user's process application with schematic "pictures" of the process. Menu-driven configuration, use of graphics tablet for creation of graphical displays, and function key access to the displays make IGS/1000 very easy to use by plant operators and non-programmers.

GIS/1000 is powerful graphics software your PMC/1000 prospects have been asking for. GIS/1000 data sheet (P/N 5954-0321) and the updated PMC/1000 data sheet (P/N 5954-0324) will be mailed to the HP field offices in December 1985. Additional copies can be ordered from the Palo Alto, California, Literature Distribution Center.

New 3278 emulator for HP 9000 Series 200 and 300

Colorado Networks Operation (CNO) has revised the IBM 3278 Display Station Emulator (P/N 98695A and 98795A) to run on the new HP 9000 Series 300 modular computers. The Pascal 3.1-based version (P/N 50955A) provides the same functions as the previous emulation product — bidirectional file-transfer capability for IBM TSO and CMS operating systems and emulation of an IBM 3278 display station.

The emulator operates with bit-mapped and alpha/graphics displays, HP-HIL and 9816/9836 keyboards (US English only), and printers and mass storage devices supported by Pascal 3.1. Your customers can execute the emulator from Pascal 3.1 or boot from the environment disc included in the product. All current Series 200 and Series 300 models, except the 226, are supported. To permit the product to be localized for non-US workstation keyboards and IBM control units, the keyboard and display tables are configurable by an HP systems engineer.

The new emulator replaces both the HP 98695A 3270 coax interface card and the HP 98795A 3278 emulator software.

SNA 1000 software links HP 1000s to IBM mainframes

Colruyt is one of the major distribution companies in Belgium. They have 250 outlets and are a major IBM user. All outlets are now equipped with an HP 1000 computer for real-time inventory control. In order to link all those HP 1000s to the IBM mainframes, the Belgian project center developed the SNA 1000 software.

SNA 1000 is a Network Gateway software program that allows HP 1000 processors to integrate into IBM's SNA networks, permitting HP terminals or application programs to appear to an IBM host as 3270 terminals. SNA 1000 offers multiple levels of integration into the SNA network:

- It can be configured as a Single Processor Gateway. In this case, it will provide access to the SNA network for only one HP 1000 system. Multiple systems can be configured, each having the gateway software loaded and having a link to an IBM host.
- It can be configured as an Integrated Internetwork Gateway. In this case, it will provide access to the SNA network for all HP 1000 systems configured in an HP 1000 Distributed Systems Network.
- Multiple network interconnections can be configured to the same or multiple IBM hosts. Doing so will allow a single HP terminal to be used as a 3270 terminal on multiple IBM hosts.
- The gateway software can be configured to run concurrently with other applications in a processor, or in extreme cases to run in a Dedicated Processor.

The interconnections of SNA 1000 with IBM use X.25 datacommunications. This communication's method is very flexible, and allows point-to-point connections over leased or private lines, as well as X.25 network connections (such as DCS and Transpac). This means that the interconnected processors can be geographically spread.

STOP PRESS

Our Crosstalk editors report that contributions have been thin of late. Remember, Crosstalk is our magazine and is only as interesting as we make it. so to all those members who have been thinking of submitting something. please put pen to paper and contact Henry Drillich. (857 6460).

WANTED

Boyd Chapman is chasing a low cost printer for a HP 83 and is looking for a HP-IB or RS 232 interface. Anyone that can help. please contact him on 555 5711.

ROADTEST – THE HP INTEGRAL PC

By M. W. Asten, BHP Exploration Department

The IPC has been in Australia for 5 months now, and experience so far is that it has impressive capabilities (relative to the HP85 which it may replace) although as a newly released product there have been some delays from H.P. in delivering software and software advice.

Briefly the beast as purchased as a sewing-machine sized PC with a Unix operating system, 1 Mbyte of user memory (on top of the operating system), built in HP-IB interface, RS232 interface, 700 Kbyte microdisk drive, electroluminescent screen, and "thinkjet" printer. As an all-in-one package it is similar in concept to the HP85 and is clearly aimed at the same market.

The Unix system brings a bag-full of helpful features new to Series 80 or 9800 users. Multi-tasking is a great time saver since a number-crunching program can be left to its own devices while operator-intensive tasks such as data entry are performed simultaneously. It's easy to interact with each task at any time by bringing it to foreground on the screen. The tree-directory file structure of Unix is implemented on discs and memory (as pseudo-disk) which is a great leap forward for anyone who has ratted through 5 Mbytes of miscellaneous files searching for a lost file on older machines. A third advantage is the logical structure whereby each peripheral device or i/o channel is accessed as a logical file, which opens up interesting possibilities of printing and plotting to files at high speed, then copying the files to hardcopy devices as slow background tasks while the main task proceeds.

The screen is medium resolution (512 × 256 pixels) and can support up to 12 easily-shuffled logical screens (alpha or graphics) for different tasks operating simultaneously. Graphics is by the HP-GL command set (used in common HP pen plotters) and includes area-fill, shading, and interactive digitizing commands not available on the HP 85/6/7.

It appears that the IPC concept includes a trend to use Third-Party software houses for applications packs. H.P. have released a 'C' compiler, Technical Basic interpreter and dumb-teletype terminal emulator, but some users will prefer the Fortran 77 compiler, VAX VT100 terminal emulator (with HP, Tektronix and DEC graphics emulation to follow) and TBasic interpreter available from third parties.

H.P.'s Technical Basic (featuring 32-character variable names, string arrays, line labels and structured format) is a successful effort to make the IPC a compatible upgrade for Series 80 users. An upload program allows any program or data file stored on disc by an HP85/6/7 to be transferred to the IPC format.

All the ROM enhancements of the older computers are supported, and even the I/O command set and registers, screen cursor, and soft key commands are identical. It was pleasant to find HP85 programs utilizing all of these "machine dependent" features able to run without modification on the IPC. The major effort in porting such programs is in upgrading them to utilize Unix-based enhancements such as text files of unlimited length (eliminating need for file creation, length and length-checking code). Programs using mass-storage unit specifiers as a file-name suffix need minor alteration to use Unix path names as a file-name prefix. Graphics commands are identical to those on the series 80, with some enhancements (including DIGITIZE with arrow keys or a mouse) but some changes are needed to utilize the different shape of the screen and the Y-direction of hardcopy dumps (previously X-direction on the HP85).

A disappointing feature of Technical Basic is an apparent lack of "hooks" between Basic and the Unix system, for example, although Basic can address Unix files and folders it cannot access the operating system to create folders. In the reverse direction although a Unix execution file can write to the Basic screen area, it cannot load and execute a Basic program. It is to be hoped that these features follow in future releases. Porting HP9845 Basic programs to the IPC is rather more involved since a change in subprogram calling and declaration syntax is required.

In addition to IPC has a larger set of reserved words which need alteration if used as variable names on the HP9845. The majority of the changes can be accomplished with a home-grown one-page Basic text scan/conversion program written for the IPC; a transferred version of a modelling program containing interactive graphics is currently under test.

Transfer of ASCII data (or programs) between the IPC and HP9845 is easy, with a 5 line Basic program on the IPC reading and writing to the serial interface as a "file", while the HP9845 terminal emulator provides intelligent handshaking at the other end. Transfer each way at 9600 baud has proved satisfactory.

The Basic interpreter operates as just one task under the Unix system, but with small programs (e.g. from the HP85) it is possible to load two independent copies of the interpreter to run as independent tasks thus giving a dual parallel program capability without resource to other languages. (Further seven-fold memory extension is also possible). Execution speed of Basic programs appears to be about 5 times the speed of HP85 execution, but this is highly dependent on I/O device used. Substantial gains in computation tasks would be possible by coding key sections of arithmetic in "C" and calling it as a binary routine from Basic.

As a new product, the IPC has experienced its share of teething problems. Distribution of software for Technical Basic and "C" followed the hardware by 2 or 3 months, several manuals dealing with details of the Unix or Basic systems are yet to be released, and "hot-line" software support has suffered delays with some queries needing referral to U.S.A. Assuming HP solves these post-natal hiccups the IPC has the capability of being a powerful and versatile field-oriented computing machine.

H.P.D.C.U.G.V. NEWSLETTER

PREVIOUS MEETING

Our last meeting was combined with the HP 1000 Group's meeting at which Alan McNamara of Laserform explained to us the computer aided design and manufacture of cutting dies for the packaging industry. Much interest was shown in the N.C. controlled Laser cutting employed in this process and we thank Alan for his interesting presentation and film.

The meeting was also addressed by HP's Managing Director Malcolm Kerr, who gave us an insight to the current organisation and direction of the company. Thanks to Malcolm for taking some of his valuable time to speak to us. Also in attendance were members of the PPC who appear to be most active with some interesting projects underway.

OTHER EVENTS

WORKSHOP — FRIDAY, 28th FEBRUARY, 1986 — FORMS DESIGN at HP's offices in Blackburn at 7.30 pm. This is intended to be a follow-up to the January meeting workshop. Various other aspects of the subject are to be discussed.

WORKSHOP — FRIDAY, 14th FEBRUARY — HPL TECHNIQUES at HP's offices in Blackburn at 7.30 pm. Intended to cover finer points of the 9825 language and program generated conversions to Basic.

LUNCHEON AND WORKSHOP, FRIDAY, 14th MARCH — SERIES 200 TECHNIQUES at Chris Simpson's, 63 Hartington Street, Kew, at 1.00 pm. To be hosted by Chris, this is intended to cover programming techniques on the HP 200 series machines. R.S.V.P. on this one so that lunch can be catered for, so please contact Chris on 859 6643.

DIARY

THURSDAY, 30th JANUARY — Meeting at HP, 7.30 pm.
FRIDAY, 14th FEBRUARY — HPL Workshop at HP, 7.30 pm.
TUESDAY, 18th FEBRUARY — PPC Meeting at Monash, 8.00 pm.
FRIDAY, 28th FEBRUARY — Forms Workshop at HP, 7.30 pm.
FRIDAY, 14th MARCH — Luncheon/Workshop at Chris Simpson's, 1.00 pm.
TUESDAY, 8th APRIL — A.G.M. at HP, 5.00 pm.

Peter Hendy,
Secretary

HEWLETT-PACKARD RELEASES NEW COMPUTER-ASSISTED PROGRAMMING SYSTEM TO MAJOR WORLD MARKETS

"HPtoday", a new, UNIX*[tm] based, Computer-Assisted Programming System developed by Hewlett-Packard's Australian Software Operation, has now been released in USA, Europe and Australasia. The HPtoday System minimises the programming time, effort and cost needed to develop dedicated transaction-based, and information management applications.

The HPtoday System, produced from an enhanced fourth generation language created in Australia by 'bbj Computer Services Pty. Ltd.', provides professional programmers with facilities to design, prototype develop, modify, and test, complex applications, without having to write source code.

For instance, with the HPtoday Screen Painter, the programmer types up the screen as it is to appear, without special coding or a screen grid. When the screen design is finished, so is the screen logic coding: HPtoday automatically provides the coding to drive the screen. Similarly, when programmers use the HPtoday Report Painter, a Report is designed, on the screen itself, just as it is to appear, and HPtoday then generates all the logic to drive the report.

"HPtoday's interactive design, on the screen, means an end to paper designs requiring the programmer to write code to make them work; maintenance and modification is easy — the programmer just moves an item on any screen, and HPtoday automatically adjusts the screen logic. Developer productivity is increased, job satisfaction improved, and application development is faster and more cost-effective," said Graeme Greenhill, Hewlett-Packard's Product Manager for HPtoday.

Of particular interest to government agencies and OEM's seeking details of HPtoday prior to today's world-wide release, is the ability of programmers to use HPtoday for producing a prototype of any application **before** writing the complete code. Changes can be incorporated, with the End User, on the spot, by simply redefining details, or changing the position of items on the screens — the changes can be instantly reviewed. The application can be demonstrated, in working mode, at the very start of application development, rather than man-weeks or man-months after the initial design.

HPtoday, which operates in the HP-UX environment, includes facilities to develop complete applications, extend or enhance existing applications, and where needed link these programs with applications written in other languages such as Cobol, Basic, Fortran, Pascal and C.

Hewlett-Packard's Australian Software Operation, (ASO), employing 52 computer industry specialists, has been established to take advantage of world-wide recognition and acceptance of Australian software expertise, such as embodied in HPtoday. Graeme Greenhill said, "ASO will continue to anticipate the growing needs of professional programmers; and produce the diverse range of new application tools to meet those needs."

* UNIX[tm] is a trademark of A. T. & T. Bell Labs., U.S.A.

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.

PUZZLE PLACE

Continue or complete the following series (at least the next term):-

a) $[10^3, 10^9, 10^{27}, 10^2, 10^0, \ldots$

b) $[0, 1, 2, 4, 16, \ldots$

c) $\ldots, 1, 8, 7, 4, 5, 6, 3, 2, \ldots$

d) $\ldots, 10, 11, 12, 13, 14, 15, 16, 17, 20, 22, 24, 31, 100, \frac{2}{-}, 10000$

e) [O, T, T, F, F, S, S, E, . . .

f) [2, 3, 4, 6, 8, 12, —, 24, 30]

Mark Michell

H.P.D.C.U.G.V. — Membership 1985/1986

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COMING EVENTS

TUESDAY, 11th MARCH:
HP 3000 — VPlus/3000 — HP Melbourne

MONDAY, 17th MARCH:
HP 1000 — Introduction to RTE — HP Melbourne
HP 3000 — System Mgr. — HP Melbourne

TUESDAY, 25th MARCH:
HP 9000 — Series 200 System Admin. — HP Melbourne

THURSDAY, 27th MARCH:
HP 3000 — HP Word Admin. — HP Melbourne

TUESDAY, 1st APRIL:
HP 3000 — System Operator — HP Melbourne

WEDNESDAY, 2nd APRIL:
HP 3000 HP Desk User, HP Melbourne

THURSDAY, 3rd APRIL:
HP 3000 HP Desk Admin., HP Melbourne

NOTE: If you have requirements for training on any HP products not covered in our formal training programme, please contact Audrey May on (03) 895 2661.

HP1000 Users Group — Membership 1985/1986

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PUZZLE SOLUTION

Answer to last issue's puzzle is:

a) $\left(\frac{17}{21}\right)^3 + \left(\frac{37}{21}\right)^3 = 6$

b) $1^3 + 2^3 = 9$ and ii) $\left(\frac{41528056497}{348671682660}\right)^3 + \left(\frac{67670246750 3}{348671682660}\right)^3 = 9$!!

The latter solution would provide an interesting programming problem for verification. H. E. Dudeney discovered this solution by hand around the turn of the century!!!

c) $69^2 = 4761$ and $69^3 = 328509$
(Another good programming exercise)

d) $9642 \times 87531 = 843973902$

Mark Michell

Future Events

We have received an open invitation to all members from the Personal Programming Club (PPC) to their monthly meetings, held at the Monash Humanities Building, Room 903, on the third Tuesday of each month at 8.00 pm. PPC are interested in the programming of hand-held machines like the HP 71 and HP 41C, etc. Enquiries can be directed to Graham Fraser on 339 2481 or A.H. 842 4586.

Gates Energy uses HP 3497A for battery testing

Gates Energy, in Denver, Colorado, manufactures a line of sealed lead acid rechargeable batteries. These batteries have high-performance, long-life characteristics over a wide range of temperatures. They are used in both the HP 110 Portable computer and the HP 3421A Data Acquisition/Control Unit.

The Quality Assurance Department of Gates Energy, with the assistance of HP sales rep, Dave Fonda (Englewood, Colorado, Sales Office), has chosen the HP 3497A and a Series 200 controller as the basis for a test system to evaluate the quality and life cycle characteristics of battery production lots. The test system subjects the batteries to a series of 24-hour charge/discharge cycles during which voltage, current, and time of day are monitored by the HP 3497A. The test system then uses these parameters to control the test process. The system runs both short 20-day tests on random samples from each production lot of batteries, as well as long, 300-to-500-day tests on each type of battery in the product line to determine deep discharge cycle life characteristics. Obviously, long term reliability and stability of the test system and its components are critical.

The test stand is pictured below. The HP 3497A configuration consists of one HP 3497A, two HP 3498A extenders, eight 20-channel relay multiplexer assemblies, eight 16-channel digital output assemblies, and five dual output voltage D/A converters. An HP 9920 controller, HP 9133 Winchester disc drive and an HP 2225A ThinkJet printer complete the HP hardware content of the system. One HP-IB interface connects the HP 9920 to the HP 3497A, while a second links the HP 9920 to the disc drive and printer.

Ninety-six batteries at a time are tested, each in an isolated position. Six voltage controlled (0-10V) load cells are at the top of the test stand. Each load cell provides a current sink (0-35A) to 16 batteries in series during the discharge cycle. The batteries are discharged at a constant current. A mercury-wetted relay, devoted to each battery, removes the battery from the discharge cycle when the voltage dropped across it falls below some minimum value. During the charge cycle, batteries are connected in parallel and are charged in sets of 16 at a constant voltage. As a full voltage capacity of each battery is reached, it is removed from the charge circuit.

The HP 3497A scans the batteries every 30 seconds, measuring voltage (during discharge), current (during charge), and time. Power and watt-hours are calculated and stored together with the scanned data for later analysis, graphing and statistical quality control. Relay switching, and power supply and load cell voltage are also controlled by the HP 3497A.

Maximum resolution of 4½ digits, together with a required speed of two scans per second, were easily handled by the HP 3497A. The test stand design, with the HP 3497A, was substantially less money than the originally proposed in-house solution. The system software, written in BASIC, is custom. The ease of use of the Series 200 computer and the power of "Rocky Mountain" BASIC were welcomed by the development team, who have invested around one-half man-year of programming in the system. Ease of interfacing the HP 9920 to the HP 3497A as well as the control card options available for the HP 3497A were also mentioned by Gates Energy as selling points. System engineer George Tyrell's assistance in solving an EMI-related relay problem reinforced HP's reputation for good, responsive, technical support.

Gates is very pleased with the system, which eliminates man-years of painstaking manual data collection. It also allows them to more accurately characterize and test their batteries through larger statistical samples and the reliable and automatic long-term test setups. Their future plans are to build 20 to 30 more test systems over the next 10 years and install them in Gates Energy facilities around the world. They have purchased an HP 1000 A900 computer to be used as the system host, providing archiving, test scheduling, and monitoring functions. Gates Energy Marketing will use one of the next two test systems built for special customer applications testing.

Gates is now in the process of evaluating the HP 3497A and the HP 3421A for use in some of its production test applications.

SPECIFICATIONS FOR SUBMISSION OF ARTICLES AND ADVERTISEMENTS

All material for Crosstalk should be sent to one of the addresses listed below 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 Glenda Patterson on (03) 895 2576.

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.

CURRENT ADVERTISING RATES:
Full page — $250
Half page — $125
Column/cm — $4

There is a 20% discount on these rates for regular advertisers. Classified ads. are free for user group members, and $10 each for non-members.

Advertisers will be billed upon receipt of ad. The user groups reserve the right to change rates, limit space availability and reject advertising which is deemed inappropriate.

ADDRESSES FOR SUBMISSION OF ARTICLES AND ADVERTISEMENTS:

HP Technical Computer Users Group, N.S.W.
Box 3060 GPO,
Sydney, 2001.
N.S.W.

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

H.P.D.C.U.G.V.
Chris Simpson
Simpson Computer Services.
63 Hartington Street.
Kew. Victoria. 3101.

HP Desktop Users Group (N.S.W.)
Dr. R. W. Harris,
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PMB 7, Sutherland, N.S.W. 2232.

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(will consider offers for all equipment. or will split. if required)
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All prices are negotiable by phoning —
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HP Terminal with Screen	3075A	Used
HP Terminal with two Screens	3075A	Used
HP Terminal with Screen	3075A	Used
Screen	40204A OPT006	New
Screen	40204A OPT006	New
Screen	40204A OPT006	New
Data Terminal Systems	951	Used
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*** SALE * SALE * SALE**

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AVAILABLE JANUARY 1986

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Please contact — Mike Clarke on 4207-233