Personal computing for the professionals

Hewlett-Packard 85

A new personal computer system comparable in size with a typewriter and intended primarily for professional use was released onto the Australian market by Hewlett-Packard during February 1980. The new HP-85 has a built in video display and printer and features an enhanced BASIC language.

According to David Booker, general marketing manager of HP Australia, "This new computer is aimed at users who need computing power in dedicated applications at a reasonable price. This could be an engineer sharing time on a large computer system or a business professional seeking to improve decision making".

"The HP-85 is reliable and easy to use because all parts — computer, CRT, keyboard, tape cartridge and printer are in one self-contained unit. Yet it is as powerful as some computers costing much more and it can be put to work immediately on many sophisticated technical, industrial and business applications. We believe this product is indicative of HP's commitment to building advanced personal computing products" Booker concluded.

The HP-85 comes with 16K bytes of read/write memory, with 14,500 bytes available to the user. The read/write memory can be expanded to 32K bytes (30,500 bytes available) simply by plugging an optional memory module into one of the four input/output ports on the back of the machine.

The HP-85's BASIC language, which exceeds the most recent ANSI standard, makes available to the user such features as 12-digit accuracy, versatile string operations, convenient editing, 42 predefined functions, four levels of program security and flexible output formatting. The formatting capability of the machine is efficient for designing program output complete with headings, columns and spaces.

An important HP-85 capability is built-in, interactive graphics. The user can plot data on the display to clarify complex information in easy-to-understand pictorial form. For example, technical users can check test results and calculations by doing curve fitting and distribution analysis on the screen.

For user convenience the keyboard is divided into four sets of functions: typewriter keyboard for entering alpha data; numeric pad for entering numbers and doing arithmetic operations; "soft" keys which are assigned a function by the user during program development and display, editing and system control keys which permit the user to control the CRT, operating system, tape drive and printer.

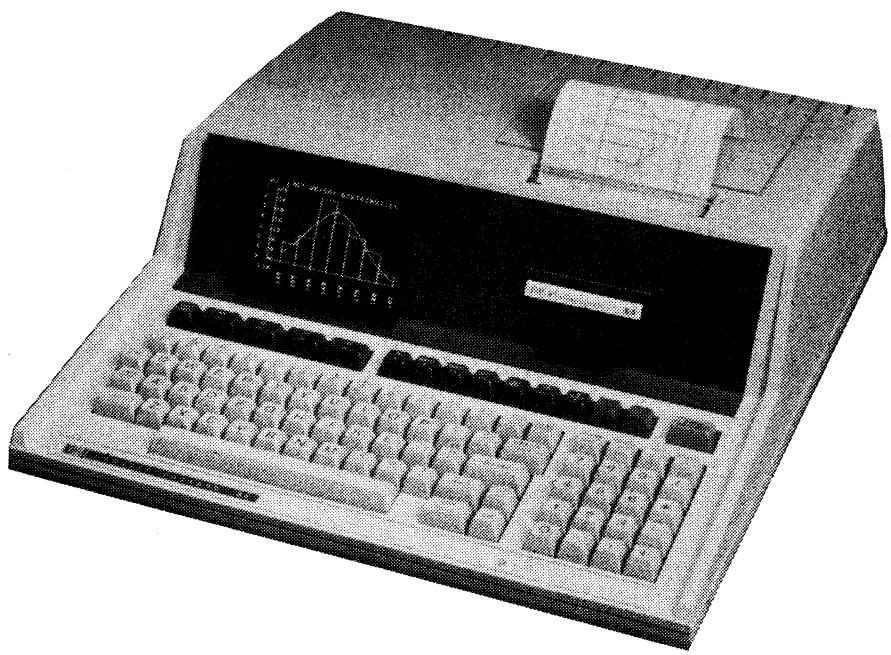
In the alphanumeric mode the 127mm, high-contrast, black-and-white CRT can display up to 16 lines of data at a time, and each line can contain up to 32 characters. The HP-85 "remembers" up to 64 lines of data, any of which can be viewed by "rolling" the display on the CRT up or down.

When operating in the graphics mode the display is broken down to a 256 (wide) by 192 (high) dot field. This means that there are 49,152 distinct points available for extremely high-resolution plotting. Further, the HP-85 stores both the last alphanumeric display and the last graphics display — a feature which allows the user to freely switch from one mode to the other without losing data from either.

The quiet thermal printer, which operates in both alphanumeric and graphics modes, prints two 32-character lines per second. In the alphanumeric mode it can print the full 128 ASCII character set which consists of upper and lower-case letters, numerals and special symbols. Additionally, the full character set can be underlined, giving the HP-85 printer a 256-character-set capability.

In the graphics mode the printer can reproduce any plot on the CRT under program control or by simply pressing a button. When plotting, the printer "rotates" the display 90 degrees, giving it capability to print continuous strip charts.

The HP-85 tape drive gives the user a convenient method of storing and retrieving programs and data. It uses HP Data Cartridges, which have a user capacity of 217,000 bytes and operates at a read/write speed of 254mm/sec and search speed of 150cm/sec. The HP-85 automatically sets up a tape directory at the beginning of each tape. Using this "table of contents", the system can automatically find exact tape locations of recorded programs and data.



The new HP-85 computer from Hewlett-Packard is designed for personal use in business and industry by professionals such as engineers, scientists, accountants and investment analysts. The HP-85 features a powful central processor, typewriter-like keyboard with 20-key numeric pad, high resolution CRT display, thermal printer, cartridge tape drive, enhanced BASIC language and interactive graphics system.

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Hewlett-Packard 85 . . . cont'd from p87

Nine HP-85 application software packages are immediately available on prerecorded cartridges, and packages combining a number of other commonly used programs are under development. Other programs will be available in written form from a users' library, and BASIC programs developed for HP's desktop computer systems can be adapted for use on the HP-85. Additionally, because HP's BASIC language meets the ANSI standard, most existing software complying with this standard can be adapted for HP-85 use.

The HP-85 application software now available on pre-recorded cartridges includes BASIC training, general statistics, mathematics, electrical engineering, finance, linear programming and regression analysis.

The HP-85 is 406 x 152 x 457mm (W x H x D) and weighs under 9kg, making it well suited for applications requiring portability. A 350-page owner's manual describing operation and programming comes with the new machine. Also included is a standard application software package which contains 15 useful HP-85 programs.

Price of the HP-85 is $3550 plus sales tax where applicable. All items are available immediately through selected authorised HP dealers.

HP Desktop

Computer

features 3-D colour graphics

Hewlett-Packard's System 45C is designed for the display and manipulation of colour graphics, with software in ROM for generating the most used geometrical figures and three-dimensional projections. Seen by HP as "a faster way to focus on the facts," colour graphics opens up a wide range of applications in scientific analysis, management information and industrial monitoring and control.

The HP Series 9800 System 45C, recently introduced by Hewlett-Packard, is an integrated desktop computer system which features extensive graphics capabilities and is able to display results in up to 4913 colours. The System 45C is completely self-contained, with a 330mm colour CRT display, keyboard, dual tape drives, a thermal printer and a light pen all built into a single unit, making it one of the most compact and powerful systems in its price range.

Robert Dey, a systems engineer with Hewlett-Packard Australia Pty Ltd, says "The System 45C can solve complex graphics computation problems and, at the same time, provide three-dimensional representations in solid or wire-frame form. Results can be displayed in vivid colours coded to enhance interpretation of results."

Hewlett-Packard's graphics language, developed for the monochromatic System 45B, has been considerably expanded for use with the System 45C. A total of 70 graphics commands are provided, which relieve the user of many programming tasks such as generating geometric figures. Figures such as circles, rectangles and regular polygons can be drawn on the CRT with simple commands. A "FILL" parameter allows the user to quickly fill in any figure drawn. The colour commands allow the display of alphanumerics and lines in any of eight colours, while a total of 4913 different shades are available for area fill.

Screen resolution is 560 dots horizontally by 455 vertically and both alphanumeric and graphics can be displayed at the same time. The light pen, supplied as part of the standard System 45C, provides a convenient way for the user to select, move, and construct objects on the display. It is possible, for example, to select and move a single pixel (dot) on the screen. A predictive algorithm developed by Hewlett-Packard moves the cursor in the direction of the light pen motion, matching the speed of movement to the speed of the light pen.

Operating software for display, graphics, and control functions is contained in 152k bytes of ROM (Read Only Memory), leaving the read/write memory available for the user's programs. Other ROMs are available which can be plugged into the standard system to provide for I/O to various peripherals, mass storage, advanced programming routines, data communication, and database management. The standard system comes with 187k bytes of RAM (Random Access Memory), which can be expanded to a maximum of 449k bytes.

The System 45C uses Hewlett-Packard's enhanced Basic language, similar to that used in HP's desktop systems for the past few years. An optional, assembly language programming ROM is also available for special control and I/O functions requiring additional speed.

Two tape drives built into the system provide storage capability of 217k bytes per tape cartridge. The second tape drive also permits tape copying and data back-up operation. The System 45C is also designed to accommodate a wide selection of mass storage devices such as flexible and hard disc drives. With the addition of the Mass Storage ROM and change of a single statement in Basic programs, the data and programs stored on tape can also be used with large-capacity disc memory units.

Alphanumerics are displayed in 24 lines of 80 characters each. The system's built-in 80 column thermal printer contains the standard 128 character ASCII set. A single command, "Dump Graphics," reproduces the CRT display at speeds of up to 25mm/sec. Colour displays are produced in shades of grey, although HP's IEEE-488 interface enables the user to connect a colour plotter if required.

CRT/Edit control keys on the keyboard allow the user to interact directly with the CRT display. Program control and editing keys permit programs to be listed and variables changed while a program is running. Thirty-two special function keys are provided, eight of which are colour-coded to the eight basic colours of the system. These keys can be defined to represent a label, a mathematical expression, a numeric constant, or any other often-used parameter, saving many key strokes in the entry of programs.

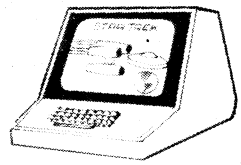
The extensive colour and graphics capabilities of the System 45C are expected to intensify the rapidly growing use of graphical computation in a wide spectrum of scientific, engineering, data acquisition and management applications. Graphical computation can lead to substantial improvements in data interpretation and productivity in such diverse fields as management, process control, and computer aided design.

Presentation of data in a graphical format leads to quick interpretation. Uses range from bar charts and trend lines as seen in financial reports, to frequency response plots in electrical engineering, for example. Using the computer to automate design and development work via graphics is a second major benefit. Significant gains in productivity can be made, especially where repetitive work is being performed or where existing drawings must be modified. A third benefit arises from using the computer's graphics capabilities to simulate and solve complex problems. Realistic simulation studies and three dimensional "wire-frame" analysis are examples.

In process monitoring and control, colour can be used as a variable to show changes in conditions, highlighting them for the operator's attention.

A basic configuration of the System 45C is available with 56k of RAM, one tape drive, no internal printer, and no light pen for $US35,280. The standard System 45C, with 187k of RAM, dual tape drives, internal printer and light pen costs $US44,240.

Microcomputer News



Portable computer from Hewlett-Packard

A new portable computer from Hewlett-Packard – the first of its kind from HP – has the capabilities of larger, desk-top computers, including Basic language programming, interfacing and software. However the new HP-75C portable computer measures only 254mm by 127mm by 32mm, weighs 737 grams and runs on batteries.

Key features of the new portable computer include 169 instructions, including 147 Basic statements and functions. Other functions including time and appointment notification are provided in a 48K-byte ROM-based operating system, and a built-in Hewlett-Packard Interface Loop (HP-IL) allows communication with instruments, peripherals and other computers.

Software for specific applications such as engineering, math and statistics, and general use packages such as electronic spreadsheets and graphics presentations are also available.

The HP-75C's CPU is a CMOS version of the 8-bit custom processor in Hewlett-Packard's Series 80 personal computers. computers.

The HP-75C ("C" for continous memory) has 16K bytes of RAM (random-access memory) built in. The RAM can be increased with the addition of the 8K memory module (HP 82700) to 24K bytes. Three plug-in ports in the computer accept 8K- or 16K-byte ROM software or enhancement modules. The ROM-based modules let the computer be customised for specific applications, and also free all the RAM for data. With three 16K-byte plug-in modules, the 48K-byte built-in operating system and 24K bytes of RAM, the HP-75C's maximum memory is 120K bytes.

The computer's real-time clock and non-volatile memory give it some unusual features. For instance, the HP-75C can be left unattended, and it will "wake itself up" at a programmed time, take a reading from an instrument, store or communicate that reading, turn itself off, and carry out the same task every day. Appointments are another example. The user can key in future appointments and the HP-75C will beep and flash a reminder at the correct date and time.

Touch-typing is possible on the HP-75C, thanks to its typewriter-like "QWERTY" keyboard. Every key can be redefined by the user for specific applications and the redefined keys can be given new labels by snapping on keyboard overlays.

The 32-character, liquid-crystal display serves as a movable "window" on a 96-character line and features character descenders.

Rechargeable nickel-cadmium batteries power the HP-75C. Batteries will run the computer for 30 hours in maximum power-drain mode, or for three or four weeks of normal use.

One type of off-line mass storage is integrated into the HP-75C. A hand-operated magnetic card reader reads or writes up to 1.3K bytes per card. A portable digital cassette recorder is available but the card reader gives the HP-75C integrated mass-storage in the portable mode.

HP-IL, Hewlett-Packard's two-wire serial interface for battery-operable controllers, is built into the new HP-75C, and lets it communicate with a large number of devices including HP-IL and non-HP-IL instruments, peripherals and other computers. The HP-75C's Basic programming language and features are designed to make it an easy-to-use, portable controller.

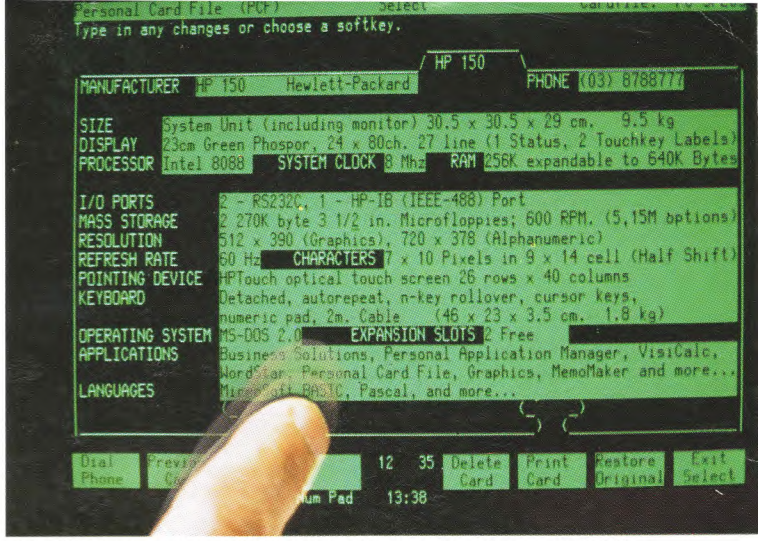
On a desktop or lab bench, the HP-75C ties into full-sized printers and plotters, and can be easily detached from the system to become a portable, battery-powered computer. The HP-75C's desktop peripherals consist of the HP 82905B 80-column impact printer, HP 82912 and HP 82913 22.5cm and 30cm video monitors, and HP 7470 colour-graphics plotter.

Both video monitors, when used with the HP 82163 video/TV interface, provide 16 lines by 32 characters display from the HP-75C. The video/TV interface also allows the HP-75C to work with other monitors and home TV sets.

And the price? Just $1639 for the basic unit, with instruction manuals extra.

For further information contact Hewlett-Packard Australia Limited, 31-41 Joseph Street, Blackburn, Vic 3130. Telephone (03) 890 6351.

Now "touch-screen"– more power to Uncle Conrad's little finger.



The HP150 computer can be operated by touching the screen itself!

Using a computer–even a so-called personal computer–is by no means second nature to an executive. The keyboard itself can be a barrier to many.

Hewlett-Packard's advanced technology has overcome this barrier for you. The remarkable new 16 bit HP150 desk top computer with its MS-DOS operating system can actually be worked by touching the video screen with your finger.

Touching aids your productivity

Even Uncle Conrad; who has already been using computers to great advantage in his business; can improve performance with an HP150.

He now has, on his own desk, a powerful computer capable of running a wide variety of practical software. It can produce reports, spread sheets, forecasts, payrolls and confidential data which he alone needs to access rapidly.

The "touch-screen" has enormous advantages.

Your instincts increase performance

From infancy we learn to point at those things we wish to control, or bring to notice. How often have you heard the phrase "I would like to point out...".

This "pointing" instinct inspired Hewlett-Packard designers to create a computer which truly deserves the adjective, *personal.*

The ability of the HP150 to respond when you simply touch the screen gives rapid access to information more easily than you ever thought possible.

Power on your desk

The HP150 system is compact and takes up very little space on your desk.

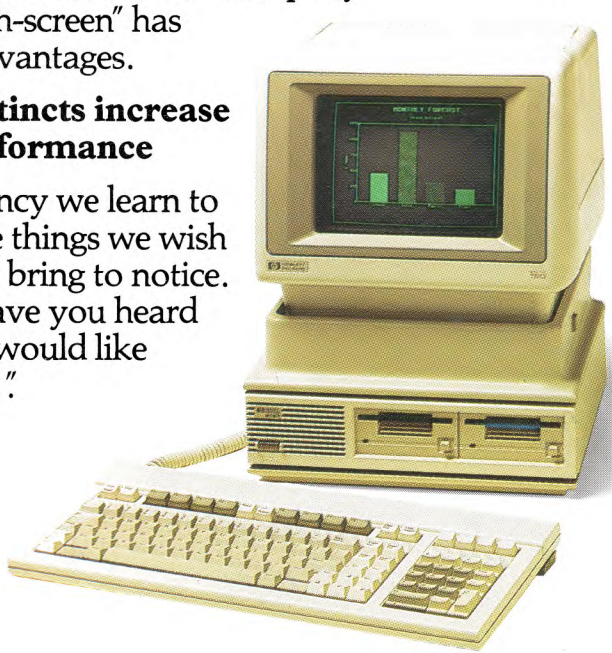
You can operate the system via the keyboard *and or* by touching the screen itself. The degree to which you use either depends on personal preference, and the software involved.

Touching is believing

To understand how close you are to using a truly *personal* computer, test drive the HP150.

Telephone Hewlett-Packard on one of these numbers to find the HP computer dealer most convenient to you.

Sydney: 888 7202
Melbourne: 878 8777
Adelaide: 272 5911
Perth: 383 2188
Brisbane: 30 4133
Canberra: 80 4244



Keeping industry, business and Uncle Conrad in touch.

HEWLETT PACKARD

LBV 5237 HEP 90369/SM

The Portable.

New from Hewlett-Packard.

The fully functional, truly portable personal computer.

It's a small miracle.

The Portable Personal Computer from Hewlett-Packard offers more total memory than most desktop models...656K in fact. That includes 272K of user memory. So, The Portable's built-in software can work with enormous amounts of data at a much faster rate than disc based software.

Lotus 1-2-3,™ Memo Maker, Personal Application Manager, Terminal Emulation – this serious, built-in software is ready to go at the press of a key. Extensive Help Screens simplify operation even further. In effect, The Portable offers desktop performance in one beautiful compact package.

For all its power, The Portable weighs in at only 4 kilos, and its exceptional mobility is enhanced by long battery life. The rechargeable battery gives you around two weeks useage on every charge and even shuts itself off and retains all your work if you leave it for a while.

If you use a Hewlett-Packard Touchscreen PC, IBM®PC, XT or an IBM compatible you'll be pleased to learn that your desktop and The Portable can talk to each other with the simple addition of the Desktop Link. Interfacing is extremely easy. In fact, it is impossible to interface The Portable incorrectly.

Add the full-size keyboard and the 16-line by 80-column screen and you can see why The Portable presents itself as an outstanding investment.

Meet The Portable and the entire family of personal computers, software and peripherals at your authorised Hewlett-Packard dealer. Call Hewlett-Packard's Personal Computer Group for the dealer nearest you.

Melbourne: 895 2805 Sydney: 888 4492 Brisbane: 304 133
Canberra: 80 4244 Perth: 383 2188 Adelaide: 272 5911

The Information Systems Company.

HEWLETT PACKARD

LBV 6333 HEP 90388/B/R

HP's Vectra PC: fast & impressive

Hewlett-Packard's new Vectra Personal Computer is directly compatible with IBM PC/AT hardware and software and runs programs up to 30% faster than the IBM. We recently had the chance to have a look at the Vectra and found it an impressive machine.

In its simplest form, Hewlett Packard's Vectra comprises a separate processing unit, monitor and keyboard. There is provision within the processing unit to include two floppy disk drives and a hard disk. Two high resolution monitors are available, one with a monochrome green screen and the other in colour. There are many other accessories to add to the basic system including LaserJet printers, digitisers, mouse, touch accessory, and modems.

Hewlett Packard supplied us with a test Vectra which included 640K of RAM, 5¼-inch drives, a hard disk drive, a 305mm high resolution colour monitor and keyboard. We were also supplied with several software packages, some specifically for the Vectra and others written for the IBM PC/AT.

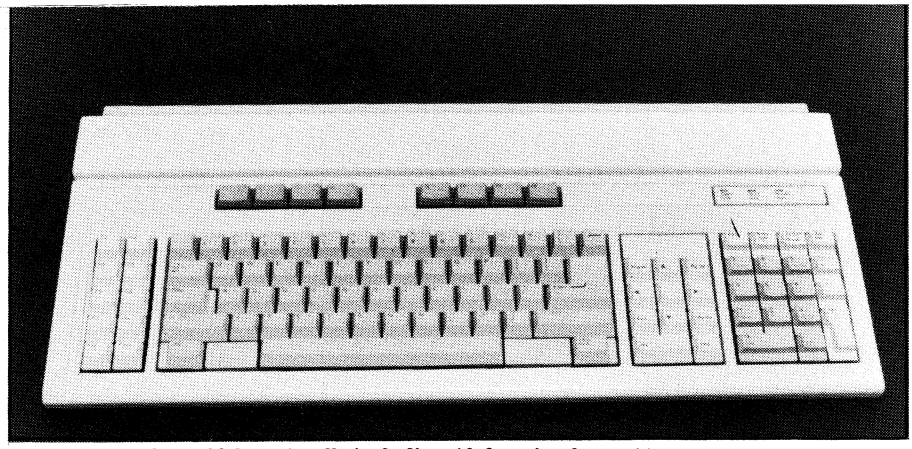
Hardware

The system processing unit is a relatively compact unit measuring 425 x 160 x 390mm (W x H x D). The monitor is designed to sit on top of this and the tilt-and-swivel screen enables a comfortable viewing angle to be easily obtained.

The Vectra is based on the Intel 80286 16-bit mircoprocessor operating at 8MHz. This is the main reason why the Vectra is able to run programs faster than the IBM PC/AT which runs at a 6MHz clock rate. There is provision for an Intel 80287 numeric co-processor to be plugged into the circuit board to give very fast calculation power and the Vectra also includes a system clock and calendar with battery backup.

Disk drives are available for both double sided double density and quad density 5¼-inch floppy disks. These have a capacity of 360K byte and 1.2M bytes respectively. Our machine had one of each type plus a 20M byte hard disk drive. Standard RAM complement is 256K although our sample had the maximum of 640K, as noted above.

An optional key operated security lock located adjacent to the disk drives selects three levels of data security. Position 1 gives free access to all disk



The keyboard has 103 keys in all, including 10 function keys, 11 cursor and screen control keys, and a numeric keypad.

data and allows removal of the top cover. Position 2 still allows access to data, but prevents removal of the top cover. Position 3 prevents access via the keyboard and locks the top cover.

At the rear of the unit is a mains power input socket and switched power outlet for connection to the monitor. There are RCA socket outputs for the Red, Green, Blue monitor signals and an extra socket for connection to the monitor. Expansion ports for a mouse, printer and external disk memory are provided.

The colour monitor has a 305mm (diagonal) screen, featuring 640 x 400 pixel resolution when used in conjunction with the multimode colour adaptor. Text is displayed in 80 columns by 25 rows with each character comprising an 8 x 16 pixel matrix. It also has the capability to display 16 colours simultaneously with a 16-level grey scale.

Controls on the front are an on/off switch and separate brightness and contrast knobs. At the rear are screw adjustments for horizontal and vertical movements. Sockets at the rear are three BNC Red, Green, Blue inputs, an RCA audio tone output and sockets for interconnecting cables from the keyboard and system processing unit.

Our sample monitor included the optional HP touch-screen facility. This consists of a frame bezel surrounding the screen which contains an array of infrared light emitting diodes and phototransistors arranged in an X-Y matrix. These divide the screen into about 230 touch areas. When a finger interrupts the beam, the finger location is interpreted by the computer.

The keyboard is a large slim-line unit measuring 522 x 223 x 20mm. All the top keys have slightly dished tops and the rows are angled backwards for good finger location and typing comfort. Keyboard attitude is adjusted by the tilting bail.

There are certainly a lot of keys on it, 103 in all. As well as the 56 standard typewriter keys, there are 10 function keys, eight control keys, 11 cursor and screen control keys, and the numeric keypad. And there are three LED status indicators, for Caps Lock, Num Lock and Scroll Lock.

Expansion

Expansion sockets provide for a large range of accessories. All the IBM PC/AT hardware accessories can be used with the Vectra and HP have a number of their own accessories which can be used.

Memory can be expanded to 3.64M of RAM and there are a wide variety of disk drives available. They include a dual 710K stand-alone 3½-inch flexible disk drive, stand-alone hard disk drives (20 x 40M byte) and a low cost ¼-inch backup tape system. These are in addition to the 5¼-inch floppy disk drives and hard disk previously mentioned.

Data communication accessories include a serial/parallel interface, dual RS-232/422 interface, IBM 3278 Emulation and internal 1200-baud and 2400-baud modems. Input devices include the touch screen facility already described, a mouse, A-size (A4) digitiser, B-size (A3) digitiser and bar-code wand.

HP printers available are the HP ThinkJet Printer, Letter-quality printer, LaserJet printer and LaserJet PLUS printer. Plotters include two, six and eight pen types.

Documentation

Four manuals come with the Vectra. These are "Setting Up Vectra", "Connecting Peripherals to Vectra", "Using Vectra, DOS Version" and 'Vectra DOS User's Reference". They are very well written documents and provide complete information. Both the experienced user and beginner are catered for by including separate beginner chapters and examples. Experienced users can jump directly to the necessary information using the index and contents pages.

Vectra personal computer

Using Vectra

Whenever the Vectra is started, the operating system is loaded into the RAM. It will copy from drive A (the floppy disk drive), or drive C (the hard disk drive). Once loaded, the Personal Application Manager (PAM) menu is displayed on the screen. PAM is a useful operating system. It allows the user to start an application or program, to set the date and time, and to manipulate application information from the main menu. It also allows the use of MS-DOS commands.

The PAM menu contains three important sections. The MS-DOS command line lets you directly type in system commands that allow you to copy, delete, create and print files. The "Application Labels" allow selection of PAM application programs, the DOS commands, File manager and Setup plus any other programs that you wish to add. Finally, "Function Labels" describe the tasks assigned to the function keys that are located across the top of the keyboard.

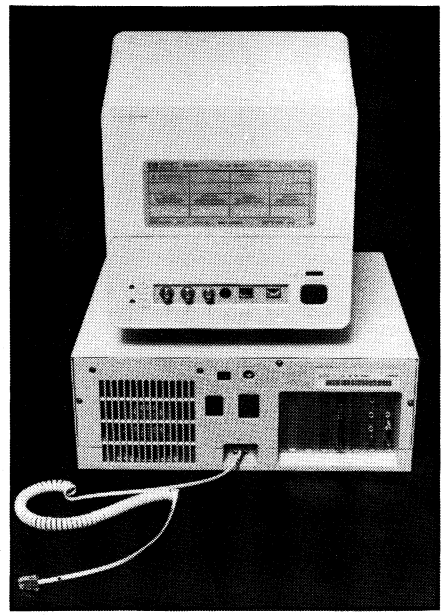
We found the touch screen facility very useful when used with PAM. The application labels and selection of the function labels could be achieved by simply pointing a finger at the screen labels; all done without touching the keyboard.

Perhaps the most impressive feature of the Vectra computer is the colour monitor. It has extremely fine screen resolution, bright colours and excellent tonal clarity. It is a startling and precise display which easily outclasses that of most other personal computers.

Keyboard operation is not as impressive. For those who have become used to the very light but noisy IBM PC keyboard for example, the Vectra's keyboard feels dead and heavy.

Software

As noted above, the Vectra is claimed to be fully compatible with the IBM PC/AT. This includes both the software and hardware accessories. We checked the latter aspect on a variety of software packages and found no particular problems. It is a great pity that Microsoft's Flight Simulator, one of the key tests of IBM compatibility, does not have a version to take advantage of the much better graphics capability of the Vectra. It ran without any problems but naturally the screen images were no different from those on a low resolution IBM colour screen.



All IBM PC/AT hardware accessories can be used with the Vectra. Expansion ports for a mouse, printer and external disk printer are provided.

Communication

The Vectra is capable of communicating with many other computers including other personal computers, mini computers and mainframes. These include IBM PC and Portable, HP 3000, 1000 and 9000, IBM 3278 and DEC VT-100.

Conclusion

In summary, the Vectra is a very professional computer which is more powerful and faster than the IBM PC/AT. Directly aimed at the business and scientific community, HP have certainly produced a very strong contender in this competitive market.

There are three basic Vectra models available. The Vectra Model 25, including 256K of RAM and one 360K byte 5¼-inch floppy disk drive costs $6841. Model 35 has 256K of RAM and a 1.2M 5¼-inch floppy disk drive at $7703. These prices include the keyboard and sales tax.

The monochrome monitor costs an extra $806 plus 13.4% tax while the colour monitor is $1860 plus tax. A multimode video adaptor is required for both monitors at $806 plus tax and for the colour monitor the multimode colour adapter is $93 plus tax.

For further information contact Hewlett Packard, 31-41 Joseph Street, Blackburn, Vic 3130. Phone (03) 895-2895. (J.C.).