

*Electronics Australia reviews the*

# Hyperion Personal Computer

**For business and professional use**

*The Hyperion personal computer from the Canadian company Bytec is an IBM-compatible "transportable" with some useful enhancements. It features excellent graphics capabilities and a wide range of software for business and professional use.*

by PETER VERNON

The most immediately striking aspect of the Hyperion computer is the design, a stylish combination of built-in screen and dual disk drives with a low-profile detached keyboard which is a delight to use. Forethought is evident in all aspects,

from the recessed front panel controls for the video display to the quality of the internal construction. The carrying handle moulded into the top of the case and the sloping shelf at the bottom which tilts the main unit for convenient

The detached keyboard features 74 keys laid out in standard qwerty pattern.

viewing, while also providing storage for the keyboard, are also good features.

With dimensions of 455 x 263 x 215mm (W x D x H) for the system unit and a weight of around 9kg, the Hyperion is "luggable" rather than portable. The attraction however is that the computer can be carried fairly easily from one workplace to another while providing everything necessary for serious business or professional use.

The keyboard has 74 alphanumeric keys laid out in a standard qwerty pattern and including a 14-key numeric pad with cursor control keys. Standard keys are in non-glare grey with control and special function keys highlighted in white. Ten "soft keys" above the standard keys can be programmed to allow single key entry of commonly used commands in MS-DOS, Basic or applications programs such as Spellbinder or Lotus 1-2-3.

Overall dimensions of the keyboard are 455 x 215 x 15mm (W x D x H), with the typing surface arranged in a concave plane for comfort and two small flip-down legs beneath the rear edge to increase the tilt of the keyboard. The key action is smooth and positive, similar to that of an electric typewriter, and requires only a very light touch. One small criticism is that the Caps Lock key does not physically lock down and gives no indication of which mode is selected. Most of the software packages designed for the Hyperion indicate the status of Caps Lock on the screen, but some programs do not.

A 17cm (diagonal) video display screen is built-in on the left side of the Hyperion front panel. The standard text display is 80 characters by 25 lines, with the bottom line dedicated to display of labels for the soft keys, although the labels can be turned off if desired. Text is displayed in amber on a non-glare background and is sharp and easily legible at comfortable viewing distances, although of course





**The Hyperion computer features a built-in video display, dual disk drives and a low-profile detached keyboard.**

individual letters are smaller than those displayed on larger video monitors. An automatic "screen saver" feature blanks the video display if the computer receives no input for a three minute period.

An unusual feature of the Hyperion is that the screen can emulate either the IBM monochrome or colour displays under software control. In the "colour emulation" mode, different intensities of amber are used to simulate colour graphics. This means that software designed for the IBM PC's colour graphics adapter board will also run on the Hyperion computer, in contrast to the problems experienced with the same software on some other "compatibles".

Text can be displayed with either 80 or 40 characters per line with character attributes (underline, blinking, intensified, reverse and sub and superscripts) interpreted either according to IBM PC standard or an enhanced Hyperion standard. Five "pages" are available for text so that it is possible, for example, to write on one page while displaying another. This feature eases

the task of programmers in providing "help" screens etc and hence also indirectly benefits users.

Graphics capabilities are also extensive, with two medium and two high resolution modes available. One set of these provides 320 x 200 and 640 x 200 pixel resolution and is compatible with IBM PC software, while the other set maintains the same horizontal resolution but increases vertical resolution to 250 pixels. Both medium resolution modes allow the use of four levels of intensity to produce different shades on the screen.

Finally, for those users who require a larger screen for demonstration purposes or whatever, a connector on the rear panel of the main unit provides a standard composite video signal output.

Also at the rear of the main unit are connectors for 240VAC power, a phone line connection, telephone handset (of which more later) and an acoustic coupler, parallel and serial printer ports and bus expansion port. All these connectors are labelled with unob-

trusive symbols and the printer and expansion ports are provided with tapped stand-offs to secure the appropriate cables in place.

Power for the Hyperion is controlled by a large illuminated pushbutton on the front panel, just next to the screen. When first switched on with a diskette in place in drive A the Hyperion performs a diagnostic self-test (for about 30 seconds) and then proceeds to load commonly used MS-DOS command files from the disk into an area of RAM set aside as a disk emulator (called Drive C). The size of this area is set to 90K by default and the copying process takes only a few seconds. From this point common operating system commands can be used without a disk access, considerably speeding up the operation of the computer.

Other programs can also use the disk emulator, again providing a significant increase in speed, while the MODE command allows the user to vary the size of the disk emulator area (and also to set screen options and printer

# Hyperion Personal Computer

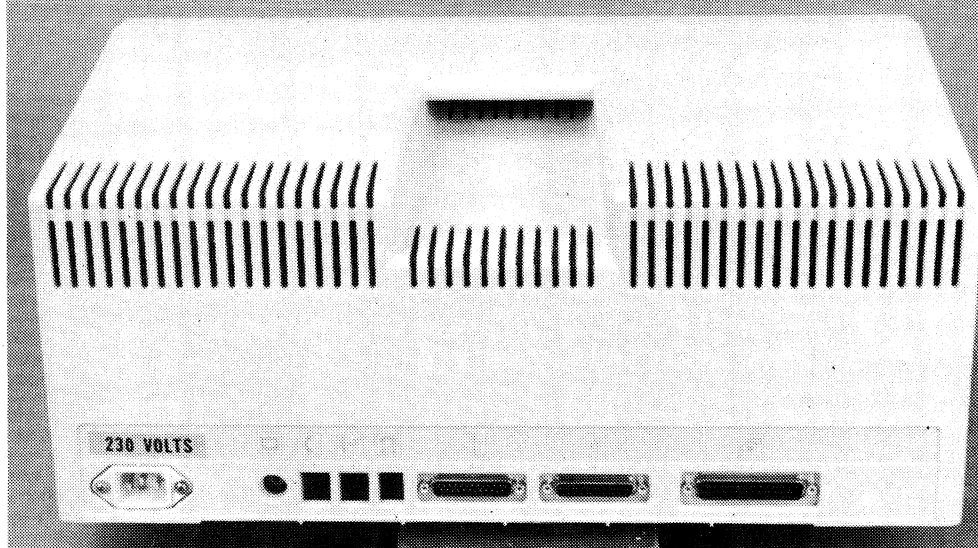
configuration). The contents of drive C are not permanent however and are lost when the Hyperion is turned off. It is intended for temporary storage of frequently used commands, not important data files or programs, but is a very nice feature nonetheless.

## Hyperion hardware

The Hyperion is based on the Intel 8088 8/16-bit microprocessor running at a 4.77MHz clock speed and there is provision for the installation of the 8087 numeric co-processor to speed up intensive mathematical operations. Memory size is 256K, with an additional 20K of static RAM used for the screen memory and 8K of ROM for the diagnostic and initialisation programs. A battery-powered clock and calendar provides ready access to the time and date, displayed on the screen with the soft key labels by the operating system or called up with TIME and DATE commands from other programs.

Mass storage is provided by two built-in Remex 13cm minifloppy disk drives with convenient "push to open, push to close" door latches. With no disks in the drives the read/write heads are locked apart to eliminate the possibility of damage caused by sudden bumps, an important consideration for a transportable machine. The disk drives are double-sided, double density types, each providing 320K bytes of storage.

Hyperion departs from IBM's concept of an "open system" by having no



The rear panel features parallel and serial printer ports, a bus expansion port and connectors for an acoustic coupler, telephone line and handset.

internal general-purpose expansion slots, but considering the likely applications of the machine and the extensive features already provided, this is not likely to be a problem. For those who insist upon using special purpose boards a separate expansion box will be available shortly, containing seven IBM-compatible hardware slots and a hard disk drive.

One expansion option is particularly worth mentioning. The previous reference to a telephone handset connection indicates the Hyperion's potential as a communications terminal. Indeed, Hyperions intended for the north American market come with a built-in modem. In Australia this add-on modem is awaiting approval by Telecom, but the Hyperion hardware and software remains ideally suited for use as a communications terminal.

The three communications connectors are American style RJ-11 telephone sockets, but suitable adapter cables will be available from the Australian distributors of the machine. The Hyperion with built-in modem is intended to be connected between a

telephone handset and a telephone wall socket (Telecom permitting) with the acoustic coupler output available when direct connection is not possible.

The IN:TOUCH software package supplied by Bytec can control the 300 baud modem, automatically dial the phone, maintain directories of telephone numbers and control the volume of the computer's internal speaker to allow voice calls to be monitored. The communications interface can be configured for most popular data transmission protocols and the program also includes a "Learn" mode which will remember the log-on sequence for a particular telephone number. Once the number is on file a single touch of a soft key will dial and another key will transmit the correct log-on sequence for a particular database.

It is to be hoped that the Hyperion can meet Telecom's standards for connection to the public telephone network so that Australian users can have the benefit of the advanced features provided by the communications hardware/software combination.

## Operating system and applications software

The operating system of the Hyperion is MS-DOS 1.1 with enhancements. It includes the standard routines such as CHKDSK, COM1, DEBUG and the EDLIN text editor but also incorporates extensions to the MODE command and routines for defining the programmable soft keys. An EXPLAIN command which provides extensive HELP files on all aspects of system operation, called up with one or two key presses, has also been added.

Application software supplied for the Hyperion includes the IN:SCRIBE word processing package from Bytec, the Multiplan spreadsheet program, Lotus 1-2-3, the Aladin database management system, Microsoft's 8086 Macro Assembler and Microsoft GWBASIC.

### BasicA statements and functions

ABS, ASC, ATN, AUTO, BEEP, BLOAD, BSAVE, CALL, CDBL, CHAIN, CHR\$, CINT, CIRCLE, CLEAR, CLOSE, CLS, COLOR(A), COLOR(G), COM(n), COMMON, CONT, COS, CSNG, CSRLIN, CVI, CVS, CVD, DATA, DATE\$, DEF FN, DEF SEG, DEFUSR, DEFINT, DELETE, DIM, DRAW, EDIT, END, EOF, ERASE, ERR, ERL, ERROR, EXP, FIELD, FILES, FIX, FOR...NEXT, FRE, GET(A), GET(G), GOSUB, GOTO, HEX\$, IF...ELSE, IF...GOTO, IF...THEN, INKEY\$, INP, INPUT, INPUT#, INSTR, INT, KEY, KILL, LEFT\$, LEN, LET, LINE, LINE INPUT, LINE INPUT#, LIST, LLIST, LOAD, LOC, LOCATE, LOF, LOG, LPOS, LPRINT, LPRINT USING, LSET&RSET, MERGE, MID\$, MKI\$, MK\$, MKDS, NAME, NEW, OCT\$, ON COM(n), ON ERROR GOTO, ON KEY, ON...GOSUB, ON...GOTO, OPEN, OPEN COM1:, OPTION BASE, OUT, PAINT, PEEK, PLAY, POINT, POKE, POS, PRESET, PRINT, PRINT# USING, PRINT USING, PRINT#, PSET, PUT(A), PUT(G), RANDOMIZE, READ, REM, RENUM, RESTORE, RESUME, RETURN, RIGHT\$, RND, RUN, SAVE, SCREEN, SGN, SIN, SOUND, SPACE\$, SPC, SQR, STOP, STR\$, STRINGS, SWAP, SYSTEM, TAB, TAN, TIME\$, TRON/TROFF, USR, VAL, VARPTR\$, WAIT, WHILE...WEND, WIDTH, WRITE, WRITE#

# Hyperion Personal Computer

IN:SCRIBE is an "in memory" word processor, meaning that it holds the entire text of a document in RAM, rather than saving portions on disk from time to time. As such it avoids the delays associated with disk accesses but is really only suitable for short documents, letters and memos. The major feature of the program is ease of learning and use, with most functions performed by the soft keys and cursor controls. The Ctrl key alters the operation of the cursor keys to allow large movements within a document, so that, for instance, pressing the right arrow key moves the cursor forward character by character while pressing Ctrl/right arrow moves the cursor forward word by word. Printing configurations are particularly versatile, using a series of printer drivers stored on disk. For a portable machine which may be used with a number of different

printers the ability to create and recall several different printer configurations is a particular advantage.

Lotus 1-2-3 is possibly the biggest-selling program for the IBM PC and other compatible machines. It is a combination spreadsheet, database manager and business graphics package with some word processing capabilities, integrated to allow the same data to be used as the basis for a spreadsheet, graphics and database without multiple keyboard entries or disk files. The high resolution and shading capabilities of the Hyperion are particularly effective in producing the line, bar and pie charts catered for by Lotus, while the soft keys are used to good effect to ease the task of learning and using the program. A tutorial disk provided with the program takes the user through demonstrations and examples of the most commonly used procedures.

Word processing and spreadsheet programs probably cover 90% of the business uses of microcomputers such as the Hyperion, but in addition Bytec publishes a monthly list of tested software which has been found suitable for their machine. The list we saw contained well over 200 programs, including Peachtree accounting software, dBase II, the Condor 3 database manager, games from Avalon-

Hill, the "Perfect" series 'Filer, 'Speller, and 'Writer, PFS packages, Visicalc IV, the Lattice C compiler, Microsoft Cobol and Fortran compilers and UCSD Pascal. Most other IBM PC programs will also run on the Hyperion, the exceptions being those which use specialised video display or disk routines rather than working through MS-DOS. Shortage of software is not likely to be a problem for the Hyperion user.

## GWBasic

The first versions of the Hyperion to be sold supplied Microsoft's GWBasic rather than BasicA as originally intended. A note in the front of the Hyperion Programmer Guide lists the differences between the two versions, chiefly the wording of error messages and the exact requirements for some of the graphics statements, but confusion can still arise because the manual lists statements such as ON COM which are not in fact available in GWBasic.

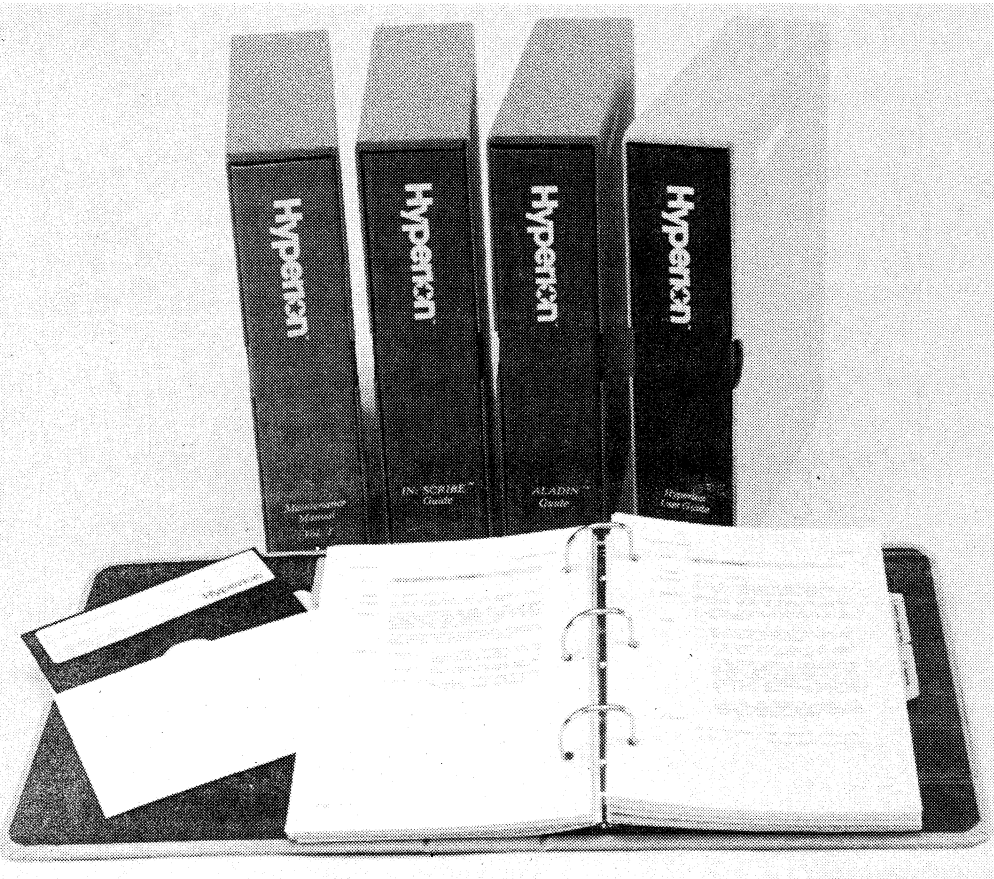
Both versions of the language are extensively enhanced compared to earlier Basic interpreters, particularly with regard to graphics, sound and I/O capabilities.

Display modes are selected by the SCREEN statement, which also controls which of the text pages will be displayed. With a graphics mode selected, the statements PSET, LINE and CIRCLE are available for drawing points, lines and curves. All take options to control attributes such as shading and can be used with both absolute and relative coordinate systems. LINE with an optional "b" will draw a rectangle while adding an "f" will fill the shape in to create a solid pattern.

The DRAW command takes a string of arguments to specify movement of the drawing point, rotation and scaling, and also allows the addition of "subroutines" which can be separate strings of arguments called from the main string. DRAW is really another language in itself. The statement PAINT is also available for filling irregular shapes and circles, while once created, shapes can be stored and retrieved in arrays with the GET and PUT statements. This allows a limited form of animation at the cost of using considerable amounts of memory.

The internal sound generator of the Hyperion is controlled by the statements BEEP, SOUND, and PLAY. BEEP produced a fixed frequency, fixed length tone and SOUND allows both the frequency and duration of the sound to be specified, with a frequency range of from 32Hz to over 32kHz and a duration of up to 65535 "ticks" at 18.2 ticks to the second. The ultrasonic frequencies are of limited utility!

Like DRAW, the PLAY statement takes a string of parameters specifying



The software includes word processing, spreadsheet and database management programs.

## Hyperion specifications

Processor	8088 at 4.77MHz with provision for 8087 numeric co-processor.
RAM	256K with additional 20K screen memory
ROM	8K for boot-up and diagnostics
Interfaces	Parallel and RS232C ports, connections for telephone and modem (pending Telecom)
Keyboard	84 keys with numeric keypad and 10 programmable keys
Display	17.8cm built-in amber screen, 80 x 25 lines, IBM colour graphics emulation.
Software	MS-DOS BasicA and 8086 macro-assembler supplied, PM/M-86 available and other programs as listed by distributor
Documentation	Clear and well organised but lacking in technical detail. Technical Manual available separately.

musical notes, octaves (over a range of seven), note length and tempo. Strangely, however, there is no volume control parameter listed in the manual.

Input/Output and print formatting capabilities are extensive, with both random and sequential access disk files supported and provision for interrupts generated by the programmable function keys and the communications ports of the Hyperion. The PRINT USING and LOCATE statements allow screen displays to be designed to any degree of complexity and there is a single key screen dump routine to reproduce screen displays on a dot matrix printer.

Machine language programmers are also well supported, with statements including CALL and USR for interfacing to machine code routines from Basic. DEF SEG also allows a form of memory management to be included in programs

so that separate areas of memory can be set aside for programs, data and machine language routines.

A full screen editor, automatic line numbering, renumbering and TRON and TROFF statements are a boon to the programmer, easing the task of creating and testing Basic programs.

While the average user of the Hyperion will probably spend most time using "off the shelf" programs for business applications, the availability of a standard form of Basic means that programs can be written for special applications without fuss. Since the power and completeness of the language eases the task of the programmer, it also benefits the user by ensuring a supply of high quality software for all applications.

## Documentation

The Hyperion is accompanied by a

soft cover "Set Up Guide" and User and Programmer Guides in ring binders packaged in linen-slip covers. While adequate for the user concerned with running pre-packaged software and for Basic programming, none of these manuals contain technical details. People interested in machine language programming or hardware expansion will look in vain for a memory map or description of the pinouts of the expansion connector. Apparently a technical guide is available separately and hopefully it will correct this short-coming.

## Conclusion and pricing

Ease of use and transportability are the main features of the Hyperion personal computer. It provides a substantially IBM PC-compatible machine with the hardware and software features most required by the business and professional user in one compact package. The availability of a built-in modem and communications software will substantially increase its appeal to workers who value mobility and will equip the Hyperion to take advantage of the ever-increasing applications of data communication. At \$5995 for a dual disk drive version (including sales tax and some software) the Hyperion is not cheap, but it still represents good value for money.

The Hyperion is distributed in Australia by Hyperion Computer Systems, 8th Floor, 275 Albert St, North Sydney, 2060. Phone (02) 92 0729. ☺