

BY THE TIME you see this the IBM-PC will have celebrated its second birthday. I wonder if IBM had any idea of the impact this computer would have when it released it (overseas) back in August 1981. Certainly the entry of IBM into the personal computer market has been a major force behind the rapid expansion of the market in the USA.

Recently we have seen the introduction of software packages written to use the extra power of the Intel 8088/8086 chips. Until now the only packages available have been warmed-over programs that could be run just as effectively on an 8-bit system. The new generation of packages such as Lotus 1-2-3 have changed all that.

Lotus 1-2-3

Lotus 1-2-3 is an integrated system of programs capable of spreadsheet analysis, database management, graphics, report generation, limited word processing, file management, translation of file formats, and text and graphics printing.

Yes, all that in one software package. That's one benefit of using the power available on 16-bit systems; the other is that 1-2-3 performs most commercial and financial spreadsheet operations about four times faster than VisiCalc.

I have not previously seen a software package that can do so many things so well, and at the same time be so well implemented. A comprehensive tutorial diskette teaches the beginner how to use 1-2-3, and its human engineering, speed, power, and flexibility make it a joy to use.

1-2-3 improves on the VisiCorp trio of VisiCalc, VisiPlot, and VisiDex in both price and functionality. If you are considering buying any microcomputer for spreadsheet work, or just a spreadsheet program, check out 1-2-3 first. I'm sure you'll have second thoughts about what to buy. This package deserves its position as the number one best-selling program for the IBM-PC.

Keep in mind that Lotus 1-2-3 is just one of a new breed of advanced software packages that will become available on 16-bit microcomputers. Many software houses have realised how huge the PC market has become and are flat out developing new programs for it. With over 3000 programs already available for the PC, the future appears very rosy indeed.

DOS 2.0

I think I can now safely say that PC-DOS (MS-DOS) will be the operating system to dominate on 16-bit microcomputers for the next twelve months. I see the IBM-PC and the Wang Professional Computer being the two most successful systems in the Australian business market, and both IBM and Wang are actively supporting the use of DOS in preference to CP/M-86, the P-System, UNIX, and others.

The introduction of DOS 2.0 has solved a number of potential problems, and at the same time provided two of the most attractive features of UNIX: tree-structured directories, and redirection and piping of standard input and output.

The introduction of tree-structured directories is designed to improve the PC's use with a hard disk. DOS 1.10 treated each disk as a separate directory. Now this is fine for a floppy-disk-based system since the number of files is limited to 64 for single-sided disks and 112 for double-sided disks. However, when a hard disk is attached the user may want to store several thousand files.

You can appreciate the problems this could cause. The use of a DIR command would result in several minutes of watching file names scroll off the screen, and it would become very difficult to locate related files. The solution is tree-structured directories.

Although there are many different types of files, for the purpose of this explanation I'll place files into one of two categories: directory files and data files. A directory is a file that catalogues and contains information used to access other files. You can think of directories as the information desk in a library. Directories don't actually contain any usable information, but they do contain passageways to other directories and files. You use directories to organise your files, but not to store information in.

Data files are like the books in a library; they contain information, but they don't allow you mobility. You cannot use a data file to get to another file.

Directories are organised into a network resembling a family tree. A 'high' directory is superior to directories on lower branches of the tree. The top directory in the tree is called the root directory, and directories on lower branches are called subordinate directories.

You may add or remove directories, copy files from one directory to another, and instruct DOS to look in a specific directory to locate a file. It is like having several disks in a drive at once.

Piping Input And Output

DOS 2.0 allows redirection of standard input and output. Standard input is the keyboard, and standard output is the screen. By using special characters on the command line you can cause a program to receive its input from a source other than the keyboard, or to direct its output to a destination other than the screen. This temporary redirection is a handy tool for debugging.

The provision of piping of standard input and output allows the standard output of one program to be used as the standard input to another. DOS 2.0 acts as a 'pipeline' to direct the output of the first program to the input of the second.

Piping is the key to the success of UNIX. By combining single-purpose tools together via piping, many different functions can be easily performed. For example, by combining the DIR command with the SORT utility it is possible to produce a sorted directory listing:

```
DIR|SORT
```

The standard output from the DIR command is sent to the standard input of the SORT utility.

Other features introduced with DOS 2.0 include background printing, hard disk support, disk volume labels, installable device drivers, increased disk capacity, improved batch mode, and ANSI escape sequence cursor positioning.

Currently there is still some confusion as to which programs will work under DOS 1.10, DOS 2.0, or both.

Some programs written for DOS 1.10 will not run under DOS 2.0. Programs that don't make (or worse, bypass) the proper operating system calls, or that make direct BIOS calls, probably will not run under DOS 2.0. Given time the situation will become clear, and I see most users upgrading to DOS 2.0.

Multi-Function Boards

Readers of magazines such as *PC World*, *PC Magazine*, *Softalk* for the IBM-PC and others will be aware of how many different multi-function add-on boards are available. Well, after a careful review I decided to go with the AST Research MegaPlus.

The standard board comes with 64 Kbytes of memory, one RS-232C asynchronous serial communications port, and a calendar clock with battery back-up. I have optioned it up to provide a total of 256 Kbytes of memory, two serial ports, a parallel port, and the calendar clock. AST Research also produces another board called MegaPak with 256 Kbytes of memory, which can be piggy-backed onto the MegaPlus board.

As a bonus, AST Research provides three valuable utility programs with the MegaPlus: SuperDrive, a disk emulation program allowing the use of part of the memory as a super-fast 'electronic disk drive'; SuperSpool, an intelligent print spooler allowing the output of files to a printer without tying up the PC; and ASTClock, a program to read the calendar clock and set the system date and time.

I am more than satisfied with the AST Research MegaPlus. The installation and operation guides for both the hardware and software are comprehensive and easy to follow. The board has provision for split memory addressing, which makes it possible to add more memory, yielding a total usable memory size of 832 Kbytes.

And how much does it all cost? I purchased the board via a mail order house in the USA for \$US520. After the cost of currency conversions, five per cent duty and shipping costs, the final total was \$A685. It makes me wonder about the level of mark-up that Australian dealers are placing on multi-function boards; one dealer quoted me \$1500 to supply this same board.

Hardware And Software Prices

I purchased my PC from CompuThink, well before the official release of the PC in Australia. Now CompuThink has not become an IBM dealer, and yet is still able to import PCs into the country and sell them at competitive prices. I think it safe to assume that CompuThink is still making a reasonable profit on its sales. This led me to consider carefully the options open to me before purchasing more hardware and software.

When I asked some dealers why software packages such as Lotus 1-2-3 (listed at \$US495 in the USA yet sold for \$A895 in Australia) have such a huge mark-up, I was told all sorts of hor-

ror stories with 35 per cent customs duty and 20 per cent sales tax as the villains of the piece. (Note the USA list price is often far in excess of the price paid when actually buying an item.)

Well, I decided to test the water. As you have seen, I saved a bundle by buying the AST Research MegaPlus direct from the USA, but what about software? The following table shows the prices I was quoted by Australian dealers, compared to the price paid by buying direct:

	Dealer	Direct
Lotus 1-2-3	\$895	\$480
TK!Solver	\$750	\$300
Copy II PC	\$85	\$50
dBase II	\$865	\$580

As you can see, it is possible to achieve some huge savings. I would like to know how the Australian importers and dealers can justify their prices.

DOS 1.10 Diskcopy And Diskcomp Bugs

The DOS 1.10 version of the DISKCOPY and DISKCOMP utilities have a bug in them which only manifests itself when the user has a large amount of memory (320 Kbytes or more) and double-sided disk drives. They will both get into an error loop and try to read past the end of the source drive.

When you purchase Lotus 1-2-3 a program called FIXDOS is provided to patch DISKCOPY and DISKCOMP. For those of you without Lotus 1-2-3 I have included in this article the patches provided by AST Research.

A patch is a short program which alters the way the operating system usually handles a particular situation. I recommend the following procedure for applying patches.

Create a DOS diskette which contains the DEBUG utility and the program to be patched. Place this disk in drive A and boot the computer. After the patch is applied and the program tested, the new (patched) version can be copied over to your working diskettes. **Do not apply patches to your master diskettes - use back-ups only! Test the patched version before using it!**

In the following procedures, you enter all **boldface** text exactly as shown; **be sure to include spaces**. End each entry line with the 'enter' key. The computer responds with all other output.

```
A>debug diskcopy.com
-e861 e8 74 00
-e8d8 3d 51 00 72 02 b0 50 a2 36 05 c3
-rcx
CX 07D8
:7e3
-w
Writing 07E3 bytes
-q
```

```
A>
A>debug diskcomp.com
-e6ec e8 79 00
-e768 3d 51 00 72 02 b0 50 a2 95 04 c3
-rcx
CX 0668
:673
-w
Writing 0673 bytes
-q
A>
```

Potential Printer Problems

I advise those of you who are using Epson printers to check the settings of the two internal DIP switches. Both the Epson MX-100 III printers I have installed came with the switches set to select the French version of the International Character Set.

More Information

If you have any special areas of interest you would like to see covered in this column, please contact me via *Your Computer*, and I'll see what can be done.

Finally, I'm wondering how much interest there would be in a Melbourne IBM-PC user group. If you are at all interested in attending meetings of such a group, please let the magazine know. If there is sufficient interest I'll see what can be done about getting a group started. □