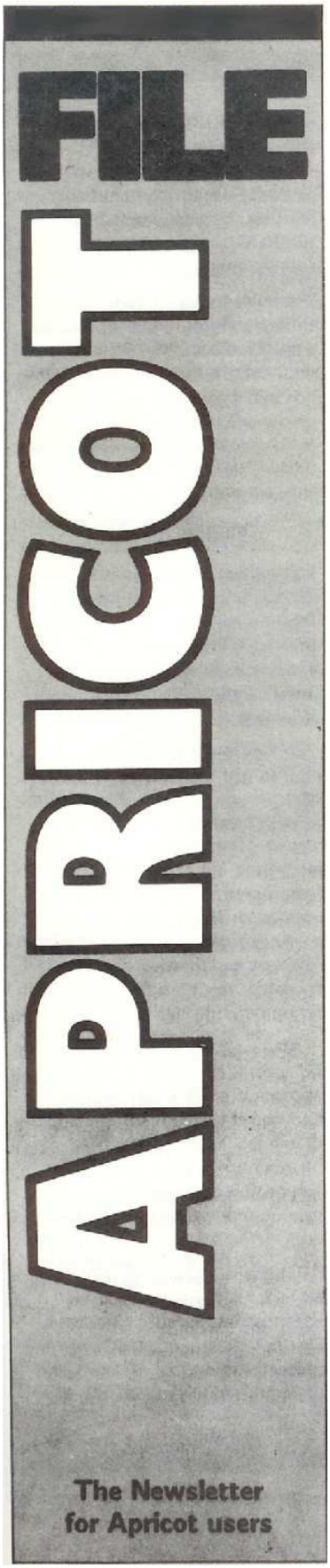
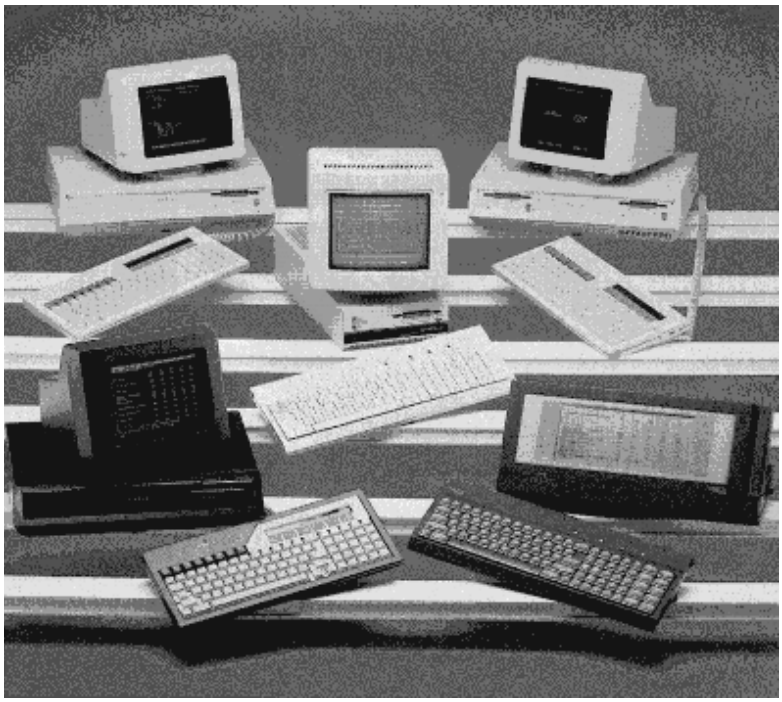


Apricot File 1_6



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Many additional thanks to Eddie Bromhead for scanning all of Release 3, 4 and extra inserts.

Release 1.6

March 1986

FILE APRICOT

The Newsletter for Apricot users

The REAL Xen?

The Apricot MicroMiniMainframe

by Roger Gann

Having severely burnt its extremities at the sub-£1000 end of the micro-computer market, Apricot has apparently completed a remarkable U-turn. Instead of trying to prove that British design can profitably demonstrate just how much the price of computer technology has fallen, the company is now eyeing the traditionally more lucrative mini-computer market with multi-user systems based on the Xen.

A completely new range of kit, all of it based around the Xen, was unveiled at a press beano held at London's Dorchester Hotel on 25 February 1986. Dealer shipments are pencilled in for April.

The heart of the new system is the modestly named Xen Mainframe. Essentially a Xen system unit *sans* keyboard or monitor, it contains the standard Xen CPU (the Intel 80286) plus 2MB of RAM. It also features one floppy disk drive, a 20MB tape streamer cartridge occupying the space for the second disk drive and a choice of hard disk storage.

With 20MB the Mainframe is priced at £4,999; the 50MB version is £5,999, and there's one with an external 100MB disk at £7,999. A 100MB tape streamer is also available for that.

Hung off of the Mainframe is the Xen Workstation. This consists of a diskless system unit, slightly narrower than the common-or-garden Xen, with keyboard and paper-white monitor. All that for only £999, which includes the network cabling sundries too. The Workstation has 1MB of RAM and a slightly slower 80286 (clock speed of 6MHz as opposed to 7.5MHz).

For XENIX NET systems you'll need the even cheaper 'Xenix console', a terminal comprising a largely empty system box, keyboard and paper-white monitor.

That's not the only option — a quite bewildering choice of operating systems is on offer. When it all becomes available, you'll be able to take your pick from multi-tasking MS-DOS 4, MS-NET/NETBIOS, and XENIX-NET.

This plethora is compounded by the permutations of kit configurations you can have. You will need a PhD to grasp the many combinations possible; but overall, you can connect 60 micros in any combination to the Xen multi-user system. The LAN-Link connection lets you mix 'n' match clusters of local area networks with each having access to the main system; gateways are also

▸ CONTINUED ON PAGE 3

In this issue

About the newsletter 2
The Disinformation Column 4
Readers' Writes 6
Software Round-up 7
Apricot Xen reviewed 9
GSX Workshop: Part 5 16
Deals for Readers 19
Apricot — an insider's view 24
Low-brow backup 26
GSX from Turbo Pascal 28

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We're always interested in articles and other submissions for publication — particularly product reviews, 'how-to' articles, technical tips and amplifications on specific packages.

If you have something you'd like to say, contact the Editor first to talk about it. Thereafter articles can be submitted in two ways — transmitted via **electronic mail** (Micromail, Telecom Gold, The Source, or Easylink): or in word processor format on **disk** (we can take Apricot, Victor and IBM PC disks. And we can handle most WP formats, but it's safest to send an accompanying hard copy too).

Material for publication should be accompanied where appropriate by a self- addressed and correctly stamped envelope or mailer. We'll do our best, but otherwise we cannot be responsible for the return of unsolicited manuscripts, disks, etc.

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planned to the new IBM Token Ring network; and there will be mainframe connections, with protocols such as SNA, 3270, ICL CO3, and X-25 all being supported.

Existing multi-user systems aren't excluded either: both the Xen HD and Point 32 systems can be upgraded to Mainframe standard.

And Apricot has announced multi-user software to complement the new hardware — like the £1,499 Office Automation Pack (includes MS-Word, Communique and Apricot Mail), a new version of Apricot Accountant at £1,999 (hacked yet again, this time into a multi-user format), and a special version of the (yawn) GEM graphics package at £499.

A mainframe style of selling the new kit will also be the order of the day. Having restricted Xen sales to a select 250 dealers, Apricot will only permit a yet smaller group of intensively-tutored "value-added resellers" flog you the new multi-user Xen. There'll be no box-shifting here.

The good ideas

Still, there's a couple of neat ideas on offer there. The chosen ones will install and commission the system at a fixed cost of 7.5 per cent of the value of the hardware: that's novel.

And for maintenace and updates, the Xen Mainframe will contain a modem im one of its slots complete with diagnostics facilities — thus enabling service engineers to check out a system at arm's length (often the best place to be when systems crash).

As if all this wasn't enough, a new laser printer was announced. This is of course an OEM rebadging job, probably the new Qume printer (looks pretty good — ten pages per minute, and quite competitive in Apricot livery at £2,799).

As with the launch of Xen, Apricot is laying particular emphasis on the price/performance benefits of the new gear. Typical four-workstation systems from the likes of NCR, Olivetti and Altos cost around £15,000: Apricot claims a more powerful four-station Xen will be about five grand less.

An IBM System 36 with eight users (get the idea about the nature of the new target audience?) is £38,000, an equivalent Xen Mainframe is £17,790.

So according to Apricot there are substantial price benefits to be had by opting for Xen. More pertinent, perhaps, there are substantial corporate-survival benefits for Apricot if you do that.

In the last year it's been demonstrated that the low-end computer business belongs to the likes of Amstrad) clever packaging, no fancy technology, mass promotion and mass production and mass sales to keep the price low: marketing through established retailers who understand how to shift electronic goods at that price (conventional computer dealers don't): no support to speak of: and a 'quick in and out' philosophy that means frequent changes of product line, being prepared to dump one configuration when sales tail off and get in quick with another.

Micros up-market

Companies like Apricot just can't compete at that end of the business: companies like Amstrad, with a background in volume sales of low-cost hi-fi, are ideally placed to do it. The home computer market may have dried up, but the low-end business system business — which once would have been the exclusive bailiwick of £1,500-to-£3,000 systems like Apricot's — is wide open to that kind of manufacturer.

Even IBM is considering a move up-market, making the standard PC/AT the *start* of its small-computer range rather than the *end*.

This gets the computer supplier and its sales outlets back to the traditional style of business they understand, with relatively low sales volume and a higher margin per product (if you expect to make 15 per cent net profit on each sale, it makes good sense to sell something that costs more) plus a lot of added value in terms of installation and support.

The shrewdness of this move being confirmed by the early success of the Xen, reportedly being shifted at the rate of about 1,000 boxes a month.

Apricot probably won't actually kill off its low-end products: they are useful in providing revenue for cashflow, even if they don't deliver much profit. They also foster (as it were) the company's self-image and its status public status. And they build up a base of new and potentially upgradeable users.

But for all the micro manufacturers, it's becoming an AT/80286/Xenix world now. That's where the *real* money will be for them over the next couple of years. ◆

The Disinformation Column

On how not to win awards

by David Langford

It was a near thing. Our street credibility could have been shattered. APRICOT FILE hacks would have nudged one another in the pub, tittering and jeering about how Langford had sold out to the big publicity interests by grovelling for a British Microhype Award As Sponsored By The *SUNDAY TIMES* ...

The crackly voice over the phone said, "We're the British Microcomputing Awards." (I managed to bite back the instinctive response 'No thanks, we've already got one'.) "We understand you, er, do a disk."

"Yes indeed! Our disk gives its buyers unlimited powers not dissimilar to those popularised by Superman, boundless sexual potency, and an uncanny ability to understand many sentences in the SuperWriter manual. Make the cheque out to —"

"No, it's the *Awards*, you're in line for Best Utility Software. Can we have all your literature?"

Blimey, I thought. Free publicity! "It's already in the post," I said. "What's the address?"

The second call came to my esteemed colleague. "We want free copies of all your software," it said ingratiatingly. "Will it run on the Xen?"

"Er, we're fairly certain it will but haven't been able to try."

"Oh! Why don't you ask Apricot to give you a Xen? That's what we did."

It *is* nice to know that innocence still survives in this cruel world. "Where do we send the software?" my partner asked. Not feeling like walking all the way downstairs to check the street number, the awards lady said: "I don't know yet, we'll ring tomorrow ..."

The third and final phone call came many days later.

"Why haven't you sent us your software?"

"We stayed in all day for you to ring with the address, but you didn't."

"Oh, well, it's too late now."

And that, dear readers, is at least one of the reasons why our little disk of SuperWriter utilities failed to be up there with the finalists: GEM, Sidekick and Windows. *(Not one of which helps you understand the SuperWriter manual — Ed.)*

Graphics without GSX

Some issues ago, I foolishly promised to spill selected beans on this subject. One important development has since emerged: Sydney Harrod's Apri- Soft Exchange has published (on a members-only disk, but membership is only £10 and the disk then comes free) Eli Napchan's GSXLIB.PAS. This is a still- developing library of procedures to allow GSX graphics to be used from Turbo Pascal. Once your Turbo program has interfaced with GSX, you can in theory use all its powerful functions without having to re-invent the wheel ...

(Or take a look at Quentin King's WORKSHOP *piece on the same subject in this issue — Ed.)*

Meanwhile, though unsure whether its square cross-section is optimal, I've been fiddling with a prototype wheel that is at least part-way towards being re-invented. It's a Turbo Pascal program to handle the Apricot PC/Xi graphics screen without any taint of GSX. And with the usual months of agonising effort, it should be possible to imitate the technique in MS-BASIC or whatever.

Step one is to set 'graphics mode' on the PC/Xi screen: send it Escape followed by } (hex 7D) to get a screen of 50 columns by 25 rows.

Step two: 'point' the screen in the direction of the graphics memory. The PC/Xi screen memory starts at F000H; it contains not actual characters but 'pointers' to locations in the font area at 0800H. We can write in a different set of pointers to make each screen cell point at a different cell of the graphics memory (2800H to C7FFH). In effect the graphics area then becomes an array of 1,250 characters that can individually be defined by you.

In step three, we get into this area of memory and start mucking about with it.

Let's have a guided tour of my small Turbo program VIEW.PAS, which merely looks at graphics memory. (To provide something interesting there for it to see, it also loads up a pretty 40,000-byte picture from a disk file. I've sent APRICOT FILE some samples and they'll be on a forthcoming DEALS FOR READERS disk.)

What now, little man?

VIEW is a simple, passive program. The next obvious step is to ditch everything between the MAIN PROGRAM and the 'Writeln(ResetScreen ...' lines, to call 'Graphics' as the first line of the main program, and to start playing around — by writing values into the 'Screen' array.

There are 40,000 graphic bytes to tinker with. Some examples of what you can do:

- Screen[0,0,0]:= 255; {set the whole of the top-left byte 'solid"}
- Screen[24,49,31]:= 255; {ditto for bottom right}
- Screen[0,0,0]:= Screen(0,0,0) or 1; {turn on one bit of that byte}

You can switch any of the 320,000 individual bits or graphic dots by variations on that last line: substitute 2, 4, 8, 16, 32, 64 or 128 for that '1', and repeat for any cell.

VIEWing with alarm

```
Program VIEW (Copyright (c) Ansible Information, 1985-6);
Type
 ScreenCell =   Array[0..31] of Byte;
 ScreenArray =  Array[0..24,0..49] of ScreenCell;
 ScreenBuffer = Array[0..1919] of Integer;
 AnyString =    String[80];
{The 'Screen' types are chosen to have the same 'shape'' as, respectively, a single cell of the
graphics screen, the whole of graphics memory, and one whole visible PC/Xi screen.}
Const
 GraphicsOn=  ^['}';                    {Sets graphics mode}
 ResetScreen= ^['z'^['(';               {Reset at high intensity}
{This Escape-z reset conveniently restores all the normal screen pointers, so we don't need to
bother with the details of that.}
Var
 Screen:      ScreenArray  absolute 0:$2800;      {Graphics screen}
 ScreenPoint: ScreenBuffer absolute $F000:0;      {Normal screen memory}
 GraphFile:   File of ScreenArray;
 FileName:    AnyString;
 Key:         Char;
 Index:       Integer;
{Absolute variables are used to define the array contents as equivalent to and identical with the
graphics and screen memory. Changing an element in Screen instantly writes the appropriate value
to graphics memory. If you're new to Turbo, you'll probably gnash your teeth at the ease with
which a file can be set up.}
Procedure Graphics;    {Set graphics mode and fill screen with pointers.}
begin
 Write(GraphicsOn);
 For Index:= 0 to 1249 do ScreenPoint[Index]:= Index+320
end;
{The 320 is just one of those, er, arbitrary constants which result from the way the Apricot was
designed. The result: screen cells point to different and successive chunks of graphics memory.}
Procedure Crash(Message:AnyString);                    {Abort on error.}
begin
 Writeln(Message);
 Halt
end;
Begin {MAIN PROGRAM — at last!}
 If ParamCount=0 then          {Look for a file name on the command line.}
   Crash('Syntax is VIEW FILENAME, where FILENAME.SCR is a saved screen.')
  else begin
   FileName:= ParamStr(1);
   If Pos('.',FileName)=0 then FileName:= FileName+'.scr';
{This is just finicky: it gives a default extension of .SCR to the file, which is assumed to
contain a saved graphics screen.}
   Assign(GraphFile,FileName);
   {$I-} Reset(GraphFile);
   If IOresult>0 then Crash('Cannot find/open the file '+FileName+'.')
    else begin
     Writeln('Now loading file ',FileName,'''....');
     Read(GraphFile,Screen);
     Close(GraphFile); {$I-}
     If IOresult>0 then
      Crash('File '+FileName+''' is not in a suitable format.')
      else Graphics
     end
{This also shows how to open and read a Turbo file. The $I- turns off input error checking so
that we stay in control of error handling: if the file doesn't exist or doesn't contain enough
data for a graphics screen, the function IOresult returns a non-zero value. The two key lines
here are 'Read(GraphFile,Screen)' — since GraphFile is a 'File of ScreenArray' we can read
straight from it into the graphics memory array — and 'Graphics'', which calls the already
defined procedure.}
  end;
 Read(Kbd,Key);                          {''Strike a key to continue''}
 Writeln(ResetScreen,'Leaving VIEW.COM.');
end.
```

Yes, this does cry out for a procedure to automate the process so that you can just write Plot(X,Y); where X runs from 0 to 799 and Y from 0 to 399. This is left as an exercise for the student. (Translation: I've no room in this column and anyhow I'm too lazy to describe it today.)

This week's tip

Here's a Turbo trick which you may not know. To fill our graphics screen with solid green you need to put 255 into every byte of 'Screen'. To wipe it to black, fill it with 0. Values inbetween give pretty but repetitive pinstripe patterns. The obvious Turbo command to do this is ...

```
FillChar(Screen,40000,255);
```

— but that gives a compilation error. You aren't allowed to specify an integer constant greater than 32767. But for reasons known only to God and Borland International, the following works happily:

```
FillChar(Screen,4*10000,255);
```

An integer by any other name ... ◆

David's last column on tiny .COM files used DEBUG's A(ssembler) command and mentioned that you can get DEBUG on one of our DEALS FOR READERS disks. Well, that's true ... except that it's an earlish version which doesn't have the A command. We're putting an updated DEBUG COM on this disk; and if you want an existing AP002 updated, send it to us with an SAE.

Letters

Readers' writes

Great escapes

As a footnote to Alec Wardop's Workshop on hex codes, it's worth observing that the famous Escape codes summary done by Friedman (and available on TP Group's Public Domain Disks as ESCAPES.TXT) could stand a little updating and annotation.

For instance, some people are still working on the theory that you need to 'enable' and 'disable' the 25th status line — in practice I find that ESC ; gets you there without any preliminary fuss.

Secondly, sending escape sequences from batch files is indeed a useful trick — but doing it via a TYPE command and an extra file seems a bit roundabout.

It's much more convenient to bung the screen controls into a line of the batch file itself, prefaced of course by ECHO.

(My favourite way to create batch files, by the way, is via the Turbo Pascal screen editor, which makes EDLIN quite redundant!)

Third, to write SuperWriter execute files I don't understand why anyone should need to fiddle with hex codes or write Basic programs.

It's much easier to do this using SuperWriter itself. The relevant command is INS MARK followed by ^ (on the PC/Xi MicroScreen) or Control-Q 2 ^ (on the F series); after that you can enter a letter from A to Z to get Control A to Z, while ESC or [will insert an escape. These characters appear in half-intensity as ^A, ^B and so on.

David Langford, Reading

Longevity revisited

I am a new subscriber, and am delighted with the issues received so far.

I do worry that 300 or so subscribers may not be adequate for you to continue: the P.S.U. newsletter for Victor owners here quit with more than 500.

Why not expand your outside-Europe circulation by offering a low-cost surface-mail option?

Roger Nils Folsom, Monterey, California

We're here to stay; TP Group isn't a hobby, it's a commercial enterprise — though it happens to operate in an area that gives us a good deal of pleasure.

We've over 500 subscribers to this newsletter now.

And the commercial basis of TP Group isn't predicated on just one newsletter — it's true that we couldn't make enough money on APRICOT FILE alone. We have VICTOR SIRIUS FILE too, we're about to launch OLIVETTI FILE (more on that elsewhere in this issue), and we have several other titles planned for the Summer.

As for the surface-mail suggestion — any overseas readers who received our September promotional mailing, which the British Post Office inadvertently sent by sea even though we had specified *air* mail, will know that it can take some months for a letter to arrive ... ◆

Software round-up

BOS beats Xenix

The **BOS** operating systrem and packages have been implemented on the Apricot Xen, and BOS Software is pretty chuffed that it can produce a six-user Xen system for around 30 per cent less than Apricot's equivalent running under Xenix. What's more, BOS reckons that its software will support up to 16 users on one Xen "with acceptable performance"; *and* you get instant networking without any amendments to the system.

Microsoft cuddles Lotus

Microsoft and **Lotus** are already Good Friends as a result of their collaboration with Intel on the extended-memory AboveBoard product for the IBM PC. But now Lotus has given Digital Research one in the eye by announcing that in future its software will be developed for MS-WINDOWS in preference to other graphics environments (eg GEM). And the existing versions of 1-2-3 and Symphony will be modified to support WINDOWS.

Deals for motor dealers

Carter-Parratt, one of the market leaders in the specialised business opf providing motor dealer systems, has come up with a 'starter pack' for the smaller user. **£199 per month** gets you a 10MB Xi, printer, training, a year's hardware and software maintenance, and packages for parts stock control, customer prospecting and follow-up, and accounting. More from **01-644 4355**

View VUWRITER

Users of **VUWRITER** who are faced with the problem of tidying up cluttered disks full of long-forgotten text files might be interested in a program which displays VUWRITER files from the operating system level in a friendly manner (by the screen or line by line). Unusual symbols such as those you find in scientific notation are not displayed: but everything which can naturally be reduced to normal text — such as italics — is. Certainly you should see enough to find out what is in the file, which means that tidying up can be done quickly and safely. You can have a copy of the program on a brand new disk (say whether you require MS-DOS or CP/M-86 format) for just **£8.50** from **Michael Bryant** at the Careers Service, University of Lancaster, Furness College, Bailrigg, Lancaster LA1 4YG; make cheques payable to 'University of Lancaster'.

Hayes hopes

Yet another freebie sub to **Telecom Gold** — recently-arrived top US modem-maker **Hayes** is giving it to the buyers of its fancy but overpriced **Smartmodem** 1200bps modem. Hayes is also offering discount subscription rates on three dial-up services: Dialog, KnowledgeIndex, and Nexis.

Spreadsheets to go

A survey last year of 5,000 PC users suggests that **spreadsheet** packages are the most likely to be replaced. That's partly because they've been in use longer than most other categories of software — an average time installed of over 25 months, compared with comms packages, accounts and word processing at 20 or so. 45 per cent of respondents were considering replacement of their spreadsheet, 42 per cent were looking for new graphics packages, 36 per cent would swap their database. By contrast, there's more satisfaction with word processors (only 26 per cent interested in replacement) and accounts software (28 per cent).

New DeSmet C

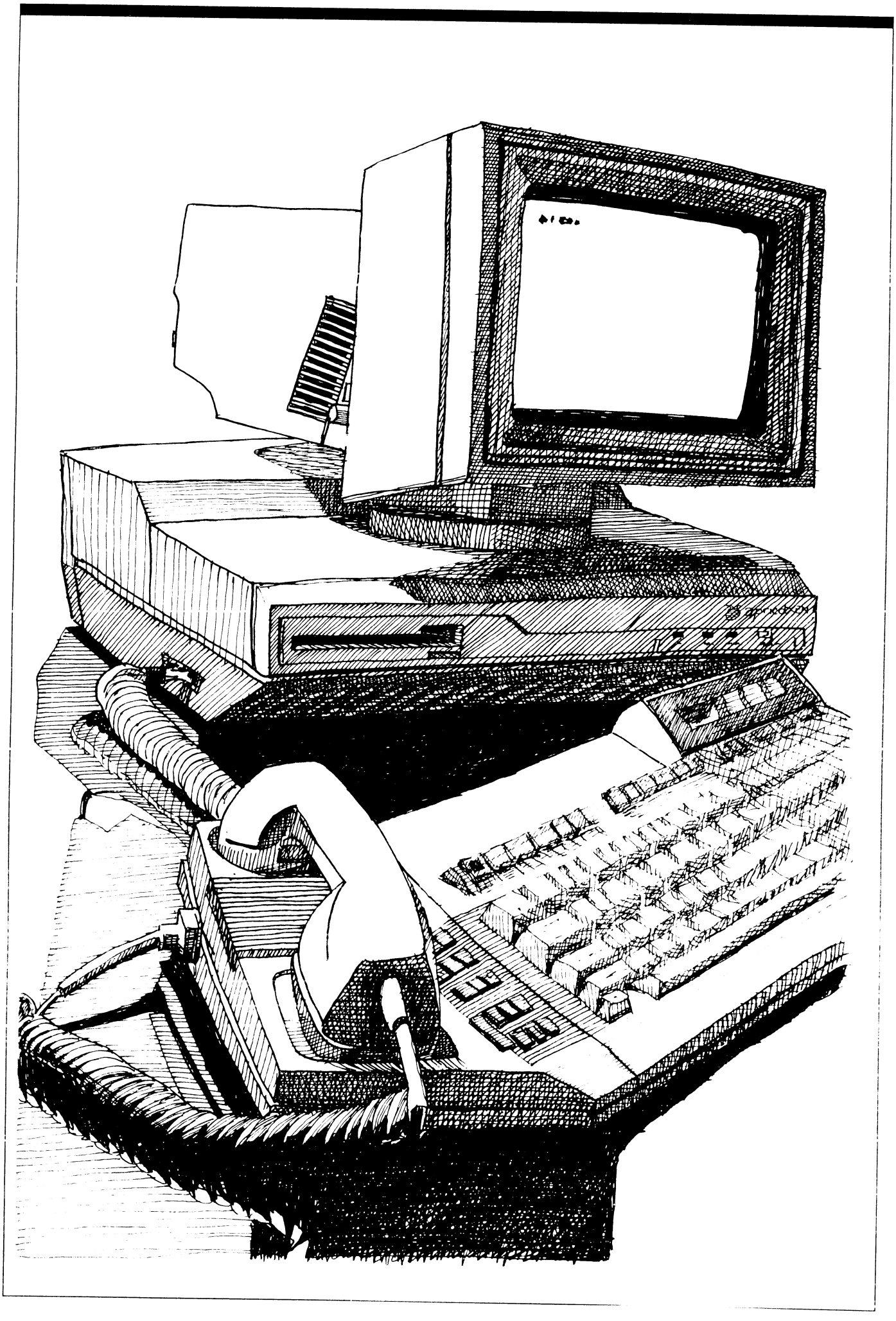
DeSmet C is definitely one of the better microcomputer implementations of the language, not least because it comes with editor, compiler, assembler, debugger and more extras on top. **MLH Technology** now has the latest version, 2.5, at **£200** (or **£145** if you can live without the debugger). This has an improved manual (hooray!) plus faster file-handling and a degree of compatibility with Unix V7. Incidentally, MLH has been building up all kinds of helpful DeSmet C utilities: well worth calling on **0606 45420**.

Moneywise lives!

After a short period in receivership, the name and products of Moneywise Software have been acquired by a company called (would you believe) **Moneywise Ltd**. This is basically Moneywise's former technical director **Mike Ingham** plus a finance man called **Peter Golden** and some ex-Moneywise programming people. Product enhancement is promised; so is support for existing users. We wish the new company well ... Info from **01-337 0663**.

Paxton back

The founders of **Paxton Computers** have bought the company back from **Star Computer Group** for £110,000. Star acquired Paxton (accounts packages) at the end of 1983 but decided that it didn't fit its own operations (accountants packages). Star lost money last year, but with Paxton's cash the last half- year results were much improved. ◆



Review

XENOPHILIA

The Apricot Xen reviewed

by Henry Deckhand

"It'll be arriving tomorrow and you can have it for a fortnight" said the Apricotperson on the other end of the phone. In fact it didn't arrive for several days, so we had it only for about a week; and judging by the clutter of miscellanous stuff on the hard disk, a dozen other reviewers had had it first.

Still, it was a working Xen. Looks quite pretty, quite businesslike; true, the light-coloured plastic will probably get grubby quite quickly, but that's nothing a spare 'Now wash your hands' sign wouldn't cure.

Our feeling at APRICOT FILE is that the Xen is a make-or-break product for Apricot. Clearly the company isn't profitable enough on the sub-£2,000 computers with which it's made its name of late; the Xen should take Apricot into the boom area of high-performance micros exemplified by the IBM PC/AT. So how does it shape up?

Power supply

First things first: let's start with a guided tour.

It looks as though the day's of the internal power supply converter such as you get in the Apricot PC and Xi are long gone. It may be the cleanest, neatest solution, but it's a lot more expensive — less opportunity to use standard off-the-shelf products, takes up room inside the casing, needs extra cooling ... Nearly all computer suppliers these days have an external power supply box. With the notable exception of the Xen's most obvious competitor, the IBM PC/AT.

The Xen comes with a solid black power supply for your floor, made by ASTEC in Scotland for Apricot (which presumably means it's an off the-shelf unit with added styling) and delivering 135 watts. Most of the watts are needed to run the hard disk, and modern slimline hard disks don't need as much power as their predecessors; 135W ought to be a sufficiency.

Good impressions start here, actually. The power supply box is quite large at 12in long by 5.5 wide and 4in high, but it's narrow and not particularly heavy. The internals are hidden by perforated metal and that's inside a slotted metal case which should provide plenty of cool air circulation (it's just possible to drop things into the power supply, but it's not easy).

One end of the box has mains in and mains out connections; they take conventional three-pin sockets. The mains out is for the monitor, of which more later.

The other has a single mains out socket which takes a different plug. It's on the end of a thick and inflexible cable that powers the system unit; it's just as well that this terminates in an AMP socket with safety screws, because the connection is none too firm and the beefy cable will easily pull out the plug if you try moving the computer without having done up those screws.

The three cables are all two metres long, a decent length that permits some flexibility in siting the computer. It does however seem a bit daft that the two mains out sockets aren't together at one end of the power supply unit, with mains in at the other — a bit of wandering spaghetti is inevitable, given the current arrangement.

Round the back

The on/off switch is next to the power socket at the back of the system unit, towards the left as you work at the computer. The switch looks as though it's the same one used on the Portable, which means it's a mite small for anyone raised on the biceps-bending monster used for the Sirius, but at least it should be difficult to switch off inadvertently. It's not at the far left, either, which also helps prevent accidents.

In the centre of the back panel is the parallel printer port — a conventional D-type socket for a conventional Centronics plug, thank the Lord, rather than IBM's loopy RS-232-like connector. The one RS232 port (female socket) is next to that; and on the righthand end is an interesting 12V power-out socket.

Now, this could be useful for connecting add-on devices that would otherwise need their own mains power and a power supply converter. On the other hand, the most obvious add-on that Average User will have is a monitor; and on the Xen this takes a separate connection. Presumably the designers couldn't incorporate a power supply into the video feed provided by the curly cable connection — given that the Xen is theoretically going to be used with a variety of monitors, the requirements for several different video controller boards are difficult enough to accommodate without having to cope with providing power on the cable as well. But if a second lead to the monitor is necessary, it would surely have been neater and simpler to plug the screen into that 12V socket.

The monitor is connected direct to a video controller board that includes a socket: you knock out one of the slats at the back, slot in the card, and plug in the monitor cable.

The only other connector is around the side at the left. It's a substantial plug for the keyboard cable that clips in very securely — makes a pleasant change after the awful PC/Xi keyboard connector.

The Reset button is next to this, recessed slightly to improve the chances of not knocking it accidentally. But all computer system reviewers invariably have some complaint about the Reset button (the Reviewers' Union imposes hefty fines if you don't); and here it comes ...

The button is set very low on the system unit's casing, and at that height something like a book could easily brush against it. It also has a very light action and a short travel, so it doesn't take much to Reset the system. Still, it does have to be held down for a while before it takes effect.

Round the front

The front of the system unit offers four red LEDs at the right — power, hard disk, floppy disk and voice.

Power is always lit when the system's on; the others only illuminate when the relevant device is being used. At least we have to assume this; the HD light did indeed perform, but the FD didn't so much as flicker when we accessed floppies. And since the Voice Input System doesn't apparently exist as yet, we'll have to take Apricot's work for that one.

The keyboard

The other area of criticism required from a reviewer is the keyboard. The Xen's produced a mixed response from our team; there's several nice features, a bit of far-sightedness, and a lot of evidence of skimping.

For a start you don't get very much curly cable!v about a foot of it in the detumescent state, say two feet of stretchability before it starts resisting. A quibble, maybe, but for the average desktop computer user it's handy to be able to park the keyboard well out of the way when you're not using it (the curious shelf-top area of the monitor is handy for that).

Around the back of the keyboard is a mousehole (Windows looks more and more like a way for Microsoft and its OEM users to sell more mice) and a little phono-style jack socket for the telephone (of which more later).

On the underside are a couple of plasticky fold-out legs which can raise the back of the keyboard about an inch. It's worth doing this; although the keyboard is styled as a wedge shape, it still lies too flat for most people without the legs extended.

The keyboard itself is nicely laid out. The main keys come in two groups, QWERTY and numerics-plus-cursor-controls, with a gap between the two; at the top right there's a revamped and much improved Microscreen with six keys below it; and on the same row are ten function keys.

The colour coding works well: printable characters are on cream keys, everything else is elephant grey. Key legends are lettered in a darker shade of that grey, which is supposed to be preferable to black (it is, too); and the grey-on-grey lettering of the non-printing keys isn't hard to read.

The keyboard has pays some lip-service to ergonomics in other ways too. The main key layout is slightly raked (meaning that if you look at it from the sides you'll see the rows of keys are arranged in an arc such that the top row is higher than the space-bar row — means the touch-typist doesn't have to stretch his/her fingers so far) and the keytops are dished (slightly concave, to fit your fingertips).

IBM, which effectively sets the standard for this kind of thing (all those typewriters), goes for a sharper rake and a deeper dish. On the Xen the raking in particular isn't really marked enough to make much difference.

But the F, J and 5 keys each have a little nipple to help touch-typists locate them as the 'home' keys for their fingers — that's a nice touch (helps you key in the dark, too).

Overall the layout is a bit crowded, but it's not too objectionable. It's certainly better than the key arrangement on the PC/Xi keyboard.

All keys repeat if you hold them down (the repeat rate is adjustable from a software utility provided) and there's the positive feedback of a distinct click when you press a key — that's done by the keys themselves, but curiously there is also a software-adjustable key-click which you can hear through the system speaker (as on the PC and Xi).

Objections: the key action is too light and a bit clacky. It's not a critical turn-off, though, and it's much superior to the feel of the F series keyboards. Besides, you get used to it after a while; but it does make the main keyboard feel a bit cheap. Well, it's not a bad middle route for Apricot to take after the experience of putting a costly keyboard on the PC and Xi followed by the el cheapo F series one.

There's no doubt at all that the function keys really are cheap. The awful flat membrane keys of the original Microscreen keyboard have been replaced Sinclair-style by six 'Chiclet' keys with built-in LEDs — infinitely preferable, of course, but not exactly impressive and with a very poor feel to them.

The ten function keys are similar, with blue labels (F1 to F10) and no LEDs; the recommended/default functions are inscribed below them. Those correspond to the implementations of the eight PC/Xi functions keys, except that F10 is unlabelled and a new F5 key for 'voice' is inserted into the sequence.

Interestingly, there's an eleventh function key position that isn't used. This is covered by a pull-out filler plug; under it there's space for a ready- to-go slot-in connect ion. Did someone change their minds? Is there an F0 function to come? Or did a designer misread the spec? More likely, it's the input for the phone or a mike.

The potentially useful MicroScreen is a great improvement. It's an LCD display much as before, but it's housed in an angled hutch that comes up from the main keyboard (spoils the lines of the keyboard and looks ugly, but actually works well in presenting the display to the user). More important, it's back-lit; that gives a kind of sea-green aquarium effect, and combined with the angling it means the MicroScreen really is readable under practically any lighting conditions. There's also an adjustment wheel under the edge of the keyboard for varying the contrast on the LCD display.

Our other objection to the keyboard was its front edge. I've grown to like the wide palm-rest lip of the Sirius keyboard, and I've grown accustomed to the sharp fall-off at the front edge of the PC/Xi keyboard. The Xen's has a very short angled lip that's neither one thing nor the other; it actually gets in the way of touch-typing.

The FORMAT program has a 'MicroSoft' option within it. This means that you can format a disk which can be both written and read on machines other than the Apricot range. Current examples of other machines that can read 'IBM' format disks are the Macintosh, Hewlett Packard PC and the IBM PC Jnr. In fact, most machines you will see appearing over the next few months that run MS-DOS and have 3.5 in. disks will be able to read your Xen disks (provided they are formatted using the MicroSoft switch. Note that Apricot's with older BIOS's won't be able to read MicroSoft format disks.

The Screen

Our Xen had the so-called 'paper-white' monitor. This is an extraordinarily ugly device with none of the clever ideas of the original Apricot screens; it plonks on the system unit's casing with the screen overhanging the front edge, and there's nothing to keep the single pivot leg in position on the top of the system unit — maybe we were all spoiled by the neat and cheap solution employed on PCs and Xis.

So swiveling the monitor means just repositioning it. The pivot allows a little backward-and-forwards tilting, but only about 10 degrees' worth; the styling is such that the screen bends eagerly up towards the user anyhow. The pivot manages to keep the screen fairly stable — though the wobbling when you touch the screen does come in equal measure from flexing of the system unit casing and the monitor trying to overbalance. It's not going to overbalance, of course, it just hulks over that one smallish leg.

Monitor controls comprise an on/off switch and brightness adjustment. There's an on/off LED (some people who sell screens that take a separate power connection don't give you any indication at all that you've left the thing switched on). No separate brightness control or screen hold, but no computer displays seem to have those these days: you probably don't need them.

The back end of the monitor is mightily finned to dissipate heat. And there is a lot of that; the top of the display unit gets distinctly warm in a matter of minutes.

The worst thing about the monitor is the most crucial aspect of any screen — the display itself. In conventional white-on-black use it's fine; a few packages with their own in-built screen drivers will select this for themselves, and Microsoft Word looks very good on the Xen display. But the default mode is black characters on a white ground, and most software will use this default mode. It's really not very pleasant.

That's probably because Apricot took the el cheapo route to get the black- on-white display — all character attributes are reversed. So any text comes out black rather than white, and any background space does the opposite. (The alternative would have been to use a different video driver chip.)

This solution has a number of unfortunate effects. For one, there's a distinct 'rolling line' effect from the refresh lines (just as you get on a TV, where it might be acceptable). And unless the brightness is whacked way up — a surefire way to get a headache — the display looks distinctly grubby. But very high brightness also happens to be the only way you can see the far righthand edge of the display; the screen shrinks as you raise the brightness, bringing the rightmost column of character-building dots back into view.

Even then the screen was noticeably off-centre, with a much larger border on the left. We couldn't find a way to drag the image back towards the centre a bit.

Inside the box

One of the neat aspects of the PC/Xi design, the easily removed cover, has been retained for the Xen; undo two screws at the back and you can slide off the cover.

Inside is a single motherboard ("made in Singapore") which also looks pretty neat. There is some bodging in the form of soldered wires here and there, but nowhere near as much as we

The Xen pricelist

Xen systems:	Price
Xen FD: 512KB, twin 720K disk	£2099
Xen HD: 1MB, 20MB hard disk	£3099

12in monitors with adapters:	
Green phosphor (800x400)	£395
Paper white (800x400)	£540
Colour ('mid-res' 640x200)	£690
Colour ('hi-res' 640x350)	£890

Inclusive software:

MS-DOS 3.11	MS-WINDOWS
ASYNC	MS-PAINT
GW-BASIC Interpreter	MS-WRITE
IBM emulator	

Expansion options:	
20MB internal hard disk	£995
80287 maths co-processor	£295
XP IBM-compatible expansion box	£195
5.25in external floppy disk	£295
256KB board	£195
512KB board	£295
Mouse	£95
XEN-COM pack (telephone, modem, software)	£395

Cheapest useable single-user systems:	
Xen FD plus green monitor	£2494
Xen HD plus green monitor	£3494

Multi-user Xenix systems:	
Xenix 3.1	£695
F1 as terminal	£699
four-port serial card	£299

The serial card is required for any more than one terminal.

Cheapest useable multi-user systems:	
four users	£7184
six users	£10176

Multi-user systems comprise a Xen HD with Xenix, one serial port card, and as many F1 terminals as required.

Notes:

The basic system prices include memory and disk, but not monitors — and the monitor prices quoted by Apricot don't include the controller board. We have included the adapter card in our monitor prices.

expected — it's still early days yet for the production awkwardnesses to get sorted out, and the next batch of boards might well have the afterthought connections as printed circuits.

Seen from the front, the memory is over to the left: we had a one-megabyte machine (well, MS-DOS thought it was 896KB because MS-DOS can't see beyond that limit) and this was implemented quite cleverly — half a meg in chips on the motherboard, another 512K on a daughterboard that is screwed on to posts directly above it, and room enough two more such boards to be stacked up before they hit the top of the case. That would give you the two megabytes Xenix can use.

In this area there's also a bus connector and a knock-out side panel for plugging in what we presume is an expansion box. There are two more expansion connectors and knock-out panels on the right side; one is presumably on an IBM bus for plugging in the 5.25in disk drive unit, the other could be for something like networking.

On the right at the back are also the slots for Apricot-size cards — all those we tried went in with no problems. There are six of these connectors; one is already spoken for by the video controller, but it's still a generous allowance of add-in extras given that you probably won't need to use them for adding memory.

You don't have to go to the bother of unscrewing the back if you want to insert boards. There's a pop-off cover which you can remove to expose the area of the slots: you shove a flat-bladed screwdriver into a slot at the front of this and that pushes back the retaining clip to get the panel off. A nice idea, but on the machine we had for review — which presumably wasn't very old — there was already much scarring and mangling around the area of the slot where frustrated people had pushed, twisted and cursed. Not very smart. The Official Explanation (which comes as a fall-out loose-leaf supplement to the manual) is that "the process requires a degree of care to ensure that the panel is removed with the minimum of difficulty".

Back inside, the motherboard is pretty well populated; but there are a few gaps for add-in chips. We counted three, two of them biggies; the 80287 floating point processor would presumably go in one. The smaller chip socket could be something to do with the voice input system — it's near a message on the board that reads MICOUT. CODEC, anyone?

The fan on the back-panel is a West German unit that looks a bit small to us. We had no problems, but a fully-loaded 2MB system might generate more heat — those memory chips can get quite warm when they're working.

The other eccentricity about the back panel is the small speaker. It's screwed on to the back, but there isn't a grille of any kind: so the sound must get a bit muffled ...

The disks are of course at the front. The 20MB hard disk on the right is a Miniscribe unit (who needs Rodime?), the floppy drive at the far left didn't have any labels but looked like one of the many Far Eastern half-height offerings. There's space inbetween for a second Winchester or a second floppy; connections for either alternative are ready-provided on the motherboard.

The only really poor aspect of the system unit was the way it bolts on to the casing. Or rather, the way it doesn't bolt at all; most of the connections appear to be screws going into the plastic.

And the plastic feels very flimsy. It's not particularly thick, there is little reinforcement, and the top — which has to bear the weight of the monitor — is decidedly bendy ...

This kind of skimping is most evident in the metal substructure that holds the disk drives. Presumably purpose-built, this is anchored pretty rigidly to the case at the front; but it's not attached at all at the back end. There are two ostentatious cut-outs for screws there, but they fall an inch short of the screw-holes in the casing which one assumes were their intended destination.

The documentation

Everyone else may be using IBM-type ring binders inside rigid box cases, but Apricot is still flying the flag for wire binding and manuals in a variety of sizes.

We got six of them, though we might have missed a few.

The glossiest (with colour photographs) is called 'Starter Pack'. Pack? Yes, a 'Pack' (it says here) is something "consisting of various manuals". This isn't a bad get-you-started booklet; it could have done with a bit more editing, and it's a bit of a mixture of computers-for-kids and propagandist hype, but it is quite clear on the Noddy stuff ("If you have a printer, or anything else connected to your Apricot, switch it off in accordance with the manufacturer's instructions").

There's a lot more of this entry-level stuff, a brief overview of different kinds of software, and a rundown on the bits of the computer including a summary of what the keys do. Some omissions here: for instance, the booklet tells you about CAPS LOCK but not about SHIFT LOCK (for anyone who wants to know, the secret is to hold down a SHIFT key and tap CAPS LOCK).

There's a booklet on ASYNC, which looks like a reprise for all the other Apricot ASYNC documentation. There's one each on the two WINDOWS utilities, WRITE and PAINT — both reprints of the standard Microsoft manuals, and none the worse for that.

The big *User Guide* for WINDOWS itself is an Apricot production based on Microsoft documentation; it includes a tutorial (pretty good, actually) and a reference section (pretty dense). The pocket in the back of this has the manual for the 'IBM emulator', and it's about as serious as that software facility — a single A5 sheet that tells you how to run IBM.BAT and hints at how the Xen keyboard setup might differ from an IBM PC's.

The GWBASIC *User Guide* is another substantial piece of work, in terms of number of pages anyhow (lots of white space on them, though). It's a reference manual rather than a user guide, naturally, and it lacks any comparison with IBM's BASICA (let alone good ole' MS-BASIC).

Overall impression: not at all bad. Clearly Apricot has learned *something* from the criticisms of its past documentation; while pretty presentation was clearly to the fore, the Xen at least gets quite of lot of information in paper form. There's isn't anything called an 'MS-DOS 3.1 Reference Manual', though — the MS-DOS information is scattered between the 'Starter Pack' and the WINDOWS manual. Maybe Apricot expects to sell more Xens as Xenix systems ...

In use

It has to be said straight off — the Xen is *fast*, particularly with the hard disk. You'll notice the performance improvement if you're used to a PC or Xi, but it's also swift in comparison with a PC/AT.

The Bagshaw benchmarks

	Xen	PC/AT
BM1	0.34	0.54
BM2	1.20	1.90
BM3	2.50	4.00
BM4	2.60	4.70
BM5	3.00	4.70
BM6	5.60	8.70
BM7	8.60	13.50
BM8	8.10	12.60
average	3.90	6.30

Notes:

These are Apricot's own figures for the Xen and PCW magazine's for the IBM; timings are in microseconds. Eric Bagshaw's benchmarks are a worthy attempt to provide objective comparisons between machines by testing a variety of quite meaningful activities. They are in Basic, however, so to some extent they assess the performance of the interpreter on that machine.

The tables indicate the speed, of course, but they don't really show the overall productivity gain on a few days' real work — with word processing,

graphics, spreadsheets and the like. (Incidentally, the Xen is a natural for big spreadsheets: SuperCalc 3 and Logistix both performed brilliantly, especially when drawing graphs.)

IBM compatibility

It's an IBM world out there, at least in terms of the mass market; and in particular, it's an IBM PC/AT world if you're looking at the boom area for the next couple of years.

Much of the adverse comment about the Xen centres on the absence of AT compatibility. To be fair, Apricot has never claimed that; it says the Xen *outperforms* the PC/AT and is *positioned* at the price level of the PC/XT. But maybe AT-compatibility is a prerequisite for future success ...

Anyhow, there is a nod or two towards IBM emulation. The keyboard layout is quite a clever mix of Apricot and IBM PC/AT, with complete Apricot compatibility and some extra IBM keys (like PGUP, PGDN, PRTSCR). And there are two extra-cost hardware options, the XP expansion box which will take two AT-style cards and the 5.25in floppy disk drive which will read and write AT-format disks. The latter is coming Real Soon Now (but you can already buy one from Alpha Disc, and it's cheaper). The XP hasn't yet been seen working by anyone we know.

None of that matters much if you can't run IBM software, and the so-called IBM emulator does little more than set up the keyboard to resemble an AT's. You can press the right keys, but they won't do much. The 'emulator' is about the same standard as you get on the earlier Apricots; it does handle some of the operating system interrupts, but the 50 per cent or so omitted are the important ones. Basically the problem is that you can't emulate an IBM if you don't have the same internal architecture: screen and memory handling are just done differently by the Apricot.

Only the very simplest IBM-format software will run on the Xen with the IBM emulator; and it probably won't be the simple stuff that you and I would like to be able to use.

Apricot's solution is the much-heralded Control C Software utility SoftClone. This is a converter that sits on top of the IBM package, intercepting IBMish function calls and translating them into a Xen equivalent. Apricot appears still to be Beta-testing SoftClone, and last we heard there wasn't any policy about how and to whom SoftClone would be sold.

Windows

Like it or loathe it, you get MS-WINDOWS as standard on the Xen. Personally I loathe it — a verbose, memory-hungry and not particularly user-friendly front- end that took an age for Microsoft to get into marketable condition. Fortunately it is quite easy to by-pass.

Still, the Xen is the first business micro to be bundled with WINDOWS. It does include some potentially handy 'desktop' features like a calculator, notepad, cardbox, and VT100 terminal emulator. It's not overburdened with daft little graphics symbols where plain text would do (that's probably to avert lawsuits from Apple). It comes with a degree of concurrency, so two programs can be running at once — though the software would have to be designed specifically for WINDOWS to get that; ordinary Apricot packages won't run concurrently.

And, most important, we can expect more deals like the one between Lotus and Microsoft which will result in key applications packages *assuming* the presence of WINDOWS.

Bundled with it are two WINDOWS-using applications that *can* run concurrently. DRAW is a pretty trivial doodling package that provides a decent demo of the Xen's graphics; WRITE is meatier.

WRITE is supposed to be a cut-down version of WORD, though the family resemblance is hard to discern; it's a WYSIWYG word processor that appears to be quite fully specified (you can specify on-screen typeface changes, for instance). But the implementation leaves a lot to be desired — not least, smooth movement through text. WRITE was the only package we tried that made the Xen's performance look ordinary.

Communications

Whatever your views on ASYNC, it *is* free and it *does* work. XEN-COM is an extra-cost option that includes an internal modem (couldn't tell if it is *the* internal modem, but it probably is) with a telephone handset that fits on to the end of the keyboard (it's not clipped there, it can just butt against the keyboard).

The phone (and therefore the whole XEN COM package) was awaiting BABT approval when we went to press, but we've used it in demos: the accompanying software is rather verbose, in the COMMUNIQUE vein, but it did seem to work — got us into Telecom Gold, anyhow.

Last words

"Xen offers the best of both the Apricot and the IBM worlds ... Xen is faster than any other 286-based business micro." Those are the two significant claims that Apricot is making for Xen, and it's worth considering the machine in that light.

The best of the Apricot world? Definitely. Nothing we ported over from our Xi and PC failed to run — and boy, did it run!

But the best of the IBM world ... well, that seems debatable to say the least. The IBM emulator is a joke, the file transfer compatibility provided by an add-on that reads 5.25in floppies is helpful but unexceptional, and the XP expansion box for two AT-format cards looks redundant until the SoftClone converter appears.

The best that Apricot can hope for in terms of the IBM world is that vendors of key IBM-format software will see a big future for the Xen and rewrite their packages to run on it. And since most of the market leaders are already available for the Xi/PC, albeit typically in slightly downgraded form, that seems possible. The ability to use the add-on floppy drive to exchange data with an IBM running similar programs comes into its own here.

Summary and comparison

	Xen	PC/AT
processor	Intel 80286	Intel 80286
clock speed	7.5MHz	6MHz
expansion slots	6	8
maximum free slots	4	6
memory minimum	512KB	512KB
memory maximum	5MB	3MB
standard diskette	3.5in	5.25in
capacity	720KB	1.2MB
standard hard disk	20MB	20MB
green-on-black screen	yes	no
white-on-black screen	no	yes
black-on-white screen	yes	no
mid-res colour	yes	yes
high-res colour	yes	yes
keys	102	84
mouse	option	not from IBM
WINDOWS	yes	not from IBM
max Xenix users	16	3
bundled software	MS-DOS 3.11 GW-BASIC MS-WINDOWS MS-WRITE MS-PAINT ASYNC IBM emulator	PC-DOS 3 BASICA

Notes:

The Xen's expansion slots take Apricot-format cards, IBM's take AT-format. The Xen's XP option has space for two AT-type cards. The 'maximum free slots' assumes the presence of disk controller and monitor adapter.

The maximum number of Xenix users may be 16, but in practice Apricot expects that 6 to 8 can be supported with acceptable performance.

"Faster than any other 286-based machine"; maybe. Some of the straight AT clones go at 8MHz (Tandy, Tandon, Compaq) and some can go faster (Victor's V286), but processor speed isn't everything. Apricot says it has optimised performance by removing all wait states from memory, and our impression is indeed that this is a *very* fast computer.

In other words, it's a great go-faster Apricot. It's pricey for that, of course. But it should also be a good multi-user system, both for Xenix and for networking: lots of memory, lots of memory expansion space, pretty cheap memory expansion boards, and all that power in the processor. The name implies it will be primarily a Xenix machine; we suspect it will be a *good* Xenix machine, but we'll have to wait for some hands-on experience.

So the overall impression is favourable, despite the caveats about the slightly tacky packaging and the suspicion of gimmickry around the phone and the IBM-compatibility. None of that matters a fig if Apricot can't sell them (or if Apricot goes belly-up), but initial reactions from the dealers are good — sales are apparently slightly ahead of target.

If Apricot can keep its targets sensible, and if it can put aside ambitions to be the world's no. 2 computer maker, the Xen could indeed be its salvation. ◆

Apricot Xen

Description: High-performance microcomputer for single or multiple-user environments, largely Apricot-compatible but competing on price and performance with IBM PC/AT and compatibles that also use the Intel 80286 processor chip.

UK supplier: Apricot plc

Address: Apricot House
17 Westbourne Road
Edgbaston
Birmingham
B15 3TR

Telephone: 021-454 9091

Price: Basic single-user systems from £2,494 (twin floppies) or £3,494 (20MB hard disk)

Conclusion: Some quibbles, but generally impressive — a pricey but zippy go-faster Apricot for the individual user, highly competitive with Xenix, BOS or MS-NET as a multi-user system.

Workshop

The Fundamentals of GSX

Part Five: The demonstration

by Lindsay Doyle

This series provides a pragmatic introduction to the Apricot GSX graphics extension — how to use without necessarily needing to know how it works.

This installment provides a pretty comprehensive GSX graphics demo. You'll need the previous articles in this series; and in particular you'll have to have the GSX skeleton program GSXSUBS.BAS.

The listing

The listing for GRAPHIC.DEM is numbered so that it can be interpolated into GSXSUBS.BAS as we did for last issue's SKETCH.BAS.

The menu gives the option of seeing all demos sequentially: or of choosing one and returning to the menu — lines 360, 440, and the others of that ilk provide for this.

The first display is simply the set of bars seen previously in instalment two's BARDEMO.BAS; no further comment should be required on this. The following display is a pie chart with one slice cut out against a full-screen background. Using these two as a base you should be able to write your own bar-and-pie-graph program to accept arbitrary inputs.

The next display runs through most of the marker types; the one following shows all seven line types. These are followed by a display showing that text font 2 can be positioned anywhere on the screen, though it is fixed in size and angle in the current release. Then text font 1 is allowed to display its ability to take any size and angle.

If you have colour, subroutine 52100 can be used to break the screen up into various areas of background colour: here it's used simply to demonstrate a chessboard-type grid in black and white.

The last display may be a surprise if you haven't worked with graphics before; it is certainly intriguing that such a simple algorithm can generate such a complex result, and that the constant rewriting of four straight lines can result in a beautiful pattern of curves. The effects are due to the fact that in the XOR mode any line overwriting a previous line will result in an inversion at the point of crossing, white to black or black to white.

By experimenting with the parameters you'll find you can generate whole families of quite different patterns, some of which will run for thousands of loops without regenerating.

This one is stopped by line 1080 when it has completed a half-cycle: try deleting the IF ... THEN phrase here and see where it goes if left alone!

Coming soon: Subjects I hope to cover in subsequent installments include saving screens to and loading from disk, reversing the entire screen, and using RAM disk to manipulate screens. Readers who've encountered any problems are welcome to contact me via the Editor, but I can give no guarantee of solutions ... ◆

The easy way

A text file for the complete GSX series along with all the programs and demos are available on an Apricot disk from our DEALS FOR READERS mail order service — order no. AP005, price £15 including VAT and P&P.

GRAPHIC.DEM — a complete GSX demonstrator

```
300   GOSUB 50000: REM DIMENSION GSX ARRAYS
320   DW = 32767: REM DISPLAY WIDTH IN
      'NORMALIZED DEVICE COORDINATES'
330   DH = DW: REM DISPLAY HEIGHT
340   LS = DH/25: REM LINE SPACE
350   CS = DW/80: REM CHARACTER SPACE
360   PI = 355/113
370   R$ = "                          " + CHR$(27)
      + "p": REM REVERSE ON
380   O$ = CHR$(27) + "q": REM REVERSE OFF

400   REM: MENU
410   PRINT CHR$(27): "E                    ";
411   PRINT CHR$(27); "d"; : REM SET UNDERLINE ON
412   PRINT " DEMONSTRATION OF APRICOT GSX
      CAPABILITIES ";
413   PRINT CHR$(27): "1": PRINT: REM SET
      UNDERLINE OFF

416   PRINT R$; "A"; O$; "LL (EXCEPT PRINTOUT)":
      PRINT
417   PRINT R$; "B"; O$; "AR FILLS": PRINT
418   PRINT R$; "P"; O$; "IE SLICES": PRINT
419   PRINT R$; "M"; O$; "ARKERS": PRINT
420   PRINT R$; "L"; O$; "INE TYPES": PRINT
421   PRINT R$; "T"; O$; "EXT FONTS": PRINT
422   PRINT R$; "C"; O$; "ELL ARRAY": PRINT
423   PRINT R$; "I"; O$; "NTERFERENCE PATTERN":
      PRINT
424   PRINT R$; "D"; O$; "EVICE CHARACTERISTICS
      PRINTOUT": PRINT
425   PRINT R$; "Q"; O$; "UIT": PRINT
```

```
430   PRINT "PRESS INITIAL LETTER OF DESIRED
      FUNCTION."
432   M$ = INKEY$: IF M$ = "" THEN GOTO 432
435   PRINT CHR$(27); "E"
440   DV = 1: GOSUB 50100: REM OPEN WORKSTATION
      AND CLEAR GRAPHICS SCREEN
445   MHMAX = G5%(12): MHMIN = G5%(10): MTMAX =
      G4%(9): CHMIN = G5%(2)

450   IF M$ = "A" OR M$ = "a" THEN K$ = "": GOTO
      500
455   MENU$ = "BPMLDTCIQE"
460   FOR K = 1 TO LEN(MENU$) + 1
465   K$ = MID$(MENU$,K,1): IF K$ = "E" THEN GOTO
      6000
470   IF K$ <> M$ AND ASC(K$) + 32 <> ASC(M$)
      THEN NEXT K
475   ON K GOSUB 500, 600, 700, 800, 55000, 900,
      1100, 1200, 5000
480   REM: B, P, M, L, D, T, C, I, Q
485   GOSUB 50200: PRINT CHR$(27); "E": GOTO 400:
      REM DISPLAY MENU AGAIN

500   REM: DISPLAY HOLLOW, SOLID, HALFTONE, AND
      HATCHED BARS
505   T$ = "BAR FILLS": X1 = 2 * CS: Y1 = DH - 2
      * LS: GOSUB 50800
510   BS = DW/22: REM BAR SPACING
511   BW = 3 * BS/4: REM BAR WIDTH
512   Y1 = 0: REM BOTTOM OF ALL BARS
513   Y2 = DH - 3 * LS: REM TOP OF ALL BARS
520   FS = 0: GOSUB 52300: REM SELECT HOLLOW FILL
      STYLE
521   X1 = BW: X2 = X1 + BW: GOSUB 51110: REM
      DRAW BAR
540   FS = 2: GOSUB 52300: REM SELECT HALFTONE
      FILL STYLES
541   FOR I = 1 TO 10
542   FT = I: GOSUB 52400: REM SELECT FILL TYPE
543   X1 = X1 + BS: X2 = X1 + BW: GOSUB 51110
544   NEXT I
550   FS = 3: GOSUB 52300: REM SELECT HATCH FILL
      STYLES
551   FOR I = 1 TO 10
552   FT = I: GOSUB 52400: REM SELECT FILL TYPE
553   X1 = X1 + BS: X2 = X1 + BW: GOSUB 51110
554   NEXT I
560   GOSUB 54100: IF K$ = "B" THEN RETURN

600   REM: DISPLAY PIE SLICES
601   FS = 2:GOSUB 52300: FT = 1: GOSUB 52400
602   X1 = 0: Y1 = 0: X2 = DW: Y2 = DH: GOSUB
      51110: REM FILL SCREEN
605   T$ = "PIE SLICES": X1 = 2 * CS: Y1 = DH - 2
      * LS: GOSUB 50800: REM LABEL
610   X1 = DW/2: Y1 = DH/2: R = .4 * DH: REM
      ORIGIN AT CENTRE OF DISPLAY
615   FS = 1: GOSUB 52300: GOSUB 51140: REM
      BACKGROUND CIRCLE

620   FS = 3: GOSUB 52300: REM SELECT FILL STYLE
      = HATCH
630   R = .3 * DH: SA = -360: EA = 0: REM START
      ANGLE, END ANGLE
631   FOR I = 1 TO 9
632   FT = I: GOSUB 52400: REM SELECT FILL TYPE
633   SA = SA + 360: EA = EA + 360: GOSUB 51130:
      REM SELECT ANGLE
634   NEXT I
635   X1 = X1 + .1 * DW: Y1 = Y1 - .045 * DH: FT
      = I: GOSUB 52400
636   SA = SA + 360: EA = EA + 370: GOSUB 51130
640   GOSUB 54100: IF K$ = "P" THEN RETURN

700   REM: DISPLAY MARKERS IN VARIOUS SIZES
710   T$ = "MARKERS IN VARIOUS SIZES": X1 = 0: Y1
      = DH - 2 * LS: GOSUB 50800
720   MH = MHMIN: MT = 1: N = 1: X1 = DW/2: Y1 =
      DH/2: I = 0
730   GOSUB 51900: GOSUB 50700: REM SELECT MARKER
      HEIGHT, DRAW MARKER
740   MH = MH + 5 * MHMIN: I = I + 1: IF I = 50
      THEN GOTO 760
750   GOTO 730
760   MH = MHMIN: MT = MT + 1: IF MT = MTMAX THEN
      GOTO 780
765   REM: INTENTIONALLY DELETED LAST MARKER
770   GOSUB 50300: I = 0: GOSUB 51800: GOTO 730:
      REM SELECT MARKER TYPE
780   GOSUB 54100: IF K$ = "M" THEN RETURN

800   REM: DISPLAY VARIOUS LINE TYPES
810   T$ = "LINE TYPES": X1 = 5 * CS: Y1 = DH - 2
      * LS: GOSUB 50800
820   Y1 = 4 * LS: X1 = 2 * CS: X2 = DW - X1: N =
      2
830   FOR J = 1 TO 7
840   LT = J: GOSUB 51500: REM SET LINE TYPE
850   Y1 = Y1 + 2 * LS: Y2 = Y1: GOSUB 50600: REM
      DRAW LINE
870   T$ = "TYPE " + STR$(J) + " ": GOSUB 50800:
      REM WRITE LABEL
880   NEXT J
890   GOSUB 54100: IF K$ = "L" THEN RETURN

900   REM: DISPLAY TEXT IN FONT 2 -- BIOS 2.6 AND
      LOWER
901   REM: FOR BIOS 2.7, REVERSE FONT NUMBERS
902   REM: EG USE "FO=1" IN LINE 905
905   FO = 2: GOSUB 52100: REM SELECT FONT
910   T$ = "THIS TEXT IS IN FONT NO. 2, A
      BIT-IMAGE FONT."
920   X1 = 2 * CS: Y1 = DH - 2 * LS: GOSUB 50800
930   T$ = "[GSX]": XINIT = 2 * CS: X1 = XINIT:
      YINIT = DH/2: CH = CHMIN
935   XINC = (DW - 6 * CS)/100
940   FOR J = 0 TO 2 * PI STEP 2 * PI/100
950   X1 = X1 + XINC: Y1 = YINIT + 8 * LS *
      COS(J): CH = CH + CHMIN
955   REM: PRESENTLY DOES NOT CHANGE SIZE
960   GOSUB 51200: GOSUB 50800: REM SET CH
      HEIGHT, WRITE TEXT
970   NEXT J
990   GOSUB 54100

1000  REM: DISPLAY TEXT IN FONT 1 -- BIOS 2.6 AND
      LOWER
1001  REM: FOR BIOS 2.7, REVERSE FONT NUMBERS
1002  REM: EG USE "FO=2" IN LINE 1005
1005  FO = 1: GOSUB 52100: REM SELECT FONT
1010  CH = 10 * CHMIN: GOSUB 51200: REM SET
      CHARACTER HEIGHT
1015  T$ = "THIS TEXT IS IN FONT NO. 1, A STROKE
      FONT WITH ROTATION
1020  X1 = 2 * CS: Y1 = DH - 2 * LS: GOSUB 50800:
      REM PRINT LABEL
1021  T$ = "AND HEIGHT CONTROL."
1022  Y1 = Y1 - LS: GOSUB 50800
```

```
1025  X1 = DW/2: Y1 = DH/2: RA = -100: T$ = "
      GSX": CH = 5 * CHMIN
1030  FOR I = 1 TO 8
1035  RA = RA + 450: GOSUB 51300: REM INCREMENT
      ROTATION ANGLE 45 DEGREES
1040  CH = CH + 5 * CHMIN: GOSUB 51200: REM
      INCREMENT CHARACTER HEIGHT
1045  GOSUB 50800: REM PRINT TEXT
1050  NEXT


1060  RA = 0: GOSUB 51300: CH = .8 * DH: GOSUB
      51200
1070  T$ = "GSX": X1 = 0: Y1 = 3 * LS: GOSUB
      50800
1080  CH = 10 * CHMIN: GOSUB 51200: GOSUB 54100:
      IF K$ = "T" THEN RETURN


1100  REM : DISPLAY 5 X 5 CELL ARRAY
1105  FO = 2: GOSUB 52100
1106  REM FOR BIOS 2.7 USE "FO=1" IN LINE 1106
1110  T$ = "CELL ARRAY IN ONE INSTRUCTION": X1 =
      2 * CS: Y1 = DH - 2 * LS
1120  GOSUB 50800: REM WRITE LABEL


1130  NC = 25: NCR = 5: NR = 5: WM = 1
1140  FOR I = 1 TO 25 STEP 2
1150  G2%(I) = 0: G2%(I + 1) = 1: REM ALTERNATE
      BLACK AND WHITE CELLS
1160  NEXT I
1170  X1 = DW/4: X2 = 3 * X1: Y1 = DH/4: Y2 = 3 *
      Y1
1180  GOSUB 51000: REM DO CELL ARRAY
1190  GOSUB 54100: IF K$ = "C" THEN RETURN


1200  REM: DRAW INTERFERENCE  PATTERN
1210  T$ = "INTERFERENCE PATTERN USING XOR
      LINES": X1 = CS: Y1 = DH - LS
1220  GOSUB 50800


1230  WM = 3: GOSUB 53200
1240  D1 = CHMIN: D2 = .6 * D1: N = 5
1250  X1 = 0: Y1 = DH/2: X2 = DW/2: Y2 = DH
1260  X3 = DW: Y3 = Y1: X4 = X2: Y4 = 0


1280  X1 = X1 + D1: IF X1 >= DW/2 THEN GOTO 1340
1290  Y2 = Y2 - D2
1300  X3 = X3 - D1
1310  Y4 = Y4 + D2
1320  GOSUB 50600
1330  GOTO 1280
1340  WM = 1: GOSUB 53200: GOSUB 54100: IF K$ =
      "I" THEN RETURN


5000  GOSUB 50200: END: REM CLOSE WORKSTATION AND
      RETURN TO BASIC


6000  GOSUB 50200: PRINT CHR$(27); "EINVALID
      INPUT": PRINT: GOTO 416
```

Advance warning

Coming soon

More TP Group newsletters

We have firmed up plans for our next few newsletters.

The first of them will be **OLIVETTI FILE**, a magazine primarily for users of Olivetti's M-series of IBM-compatibles — primarily the M24 and M28.

The editorial style and general look will be much as you've seen in APRICOT FILE and VICTOR SIRIUS FILE; some of the contributors will also be the same. Primarily because we'll be buying some new equipment, OLIVETTI FILE will have to be a bit more expensive — probably £50 or £60 a year — but subscribers to our existing newsletters will be offered a discount. Expect a promotional letter with your next issue ...

The discount sub rate will also apply to our other Summer launches. These are a month or two away, but the titles planned are:

- **COMMS FILE** covering communications for any and all micros: subjects like bulletin boards, electronic mail services, Telex from your micro, driving serial ports. Lots of reviews of modem and comms packages too.
- **BUDGET SOFTWARE FILE** for news, reviews, Workshops, hints and tips on any software priced at less than £150 or thereabouts. We'll be including Public Domain material as well as commercially available packages. Again, this one will cover all popular business micros.
- **THE POTTER FILE** will be a 'Review of Reviews' in three parts — an alphabetical listing by product that indicates where it's been reviewed in the computer press: a summary of the review conclusions for particular products, with any comments we ourselves may have, and a synopsis of the past month's reviews. Coverage will include hardware and software for popular business micros, and we'll be reading magazines and newsletters from around the world.

Beyond those, we're looking at several other possibilities. Among those we are considering are titles for the **AT/286/Xenix** world, **dBASE** users, and (coals to Newcastle) **in-house publishing** using the same kind of set-up that we ourselves have. Things are moving! **Watch this space ...**

Deals For Readers

This is our mail-order section, exclusively for readers of APRICOT FILE. **In the** DEALS FOR READERS **lists you'll find ...**

- **public domain software,** mostly games and utilities that aren't easy to obtain elsewhere — and many of these are unique to APRICOT FILE
- **deals on software,** typically useful items that aren't widely available
- **demo disks** for packages that we regard as pretty good
- **books,** mostly by contributors.

Each issue has new entries and (occasionally) price changes. So keep looking!

How to order

Simple: just send us a note or a purchase order with the item's name and the reference number as quoted in the list. We will normally be able to process orders within two working days.

Note that for orders totalling less than £50 we can only accept prepayments and only in Sterling, so a cheque or money order (made out to "TP GROUP") *must* accompany your order.

We can accept purchase orders *only* from companies and other organisations, and *only* if you want goods totalling more than £50. But if it's at all possible we would prefer cash with order — we just aren't big enough to provide the effort of chasing invoices and to cover the shortfall between despatch and delivery.

The prices quoted include VAT where applicable and despatch. Your order will arrive with a VAT invoice/receipt.

Overseas orders

Orders from outside the British Isles are at the same price. Anything we send abroad is free of the VAT sales tax, and since that 15 per cent levy just about approximates to the extra cost of overseas postage we thought we might as well simplify things.

This may however mean that bulky items or long-distance despatch will go by the postage rate that most closely fits the 15 per cent allowance — and sea mail can be interminable. So if you want to ensure swift despatch, or if there's any doubt, ask us to quote ...

Contribute!

We're always looking for contributions to further £15 disks. So if you've written something — a game, a utility, a helpful batch file — why not share it with other readers? And if the ideas and techniques therein would make a useful mini-article for the newsletter, we'd certainly be interested in printing it.

And that also applies to bugs. No- one can expect this stuff to have the same rigorous checking-out that you should expect from commercial packages. We do check the material on the public domain disks, but we can't do that exhaustively — so let us know if you come across any bugs.

Public Domain Disks

These disks contain public domain programs and text files which we have sorted, selected and tested. In many cases we have debugged, amended and documented the material too. It has been culled from a variety of sources — some converted from other formats (mostly IBM PC) and checked out or revised for the Apricot: some taken from published programs: some written by contributors. As a result the disks are a bit of a miscellany, but we'd be very surprised if you couldn't find a dozen or more useful items on each disk.

Apricot Disk No. 1

Order no:	**AP001**
Price:	**£15**

Over 40 files. Highlights now include:
AUTOEXEC with an improved prompt
SDIR and **FDIR** two sorted-directory utilities
VDEL and **DELQ** two selective DELete commands
WAIT and **ASK** two batch file commands, both more useful than PAUSE
GRAFCHAR define your own characters
ESCAPES list of Escape code for Sirius and Apricot
OTHELLO good version of the board game
LEADTRAK and **ACCTRACK** two sales lead management systems

Apricot Disk No. 2

Order no:	**AP002**
Price:	**£15**

Includes 79 files. Highlights:
ALTER and **CHMOD** change file attributes
BASICKEYS single-key entry of Basic commands
DEBUG the Apricot version
EPSON sets alternative print modes
KNEW copies only new files
MENU easy batch-file menu system
MOVE moves files from one subdirectory to another
RENDIR rename subdirectories
SORTDISK sorts directories in a variety of ways

TREEDIR displays a DIRectory of all files on a disk — in their subdirectories
WHEREIS searches disk subdirectories for named file(s)

Apricot Disk No. 3

Order no:	**AP003**
Price:	**£15**

A bumper bundle. Highlights:
SWEEP excellent all-purpose file housekeeper
SCAVEN finds and locks out bad sector on microfloppies
MEMDUMP browse through memory
TURBOKEY key redefinition for aficionados of Turbo Pascal
SUPERWRITER XQT FILES a useful clutch of macros

Games

Order no:	**AP004**
Price:	**£15**

Includes the very tough flight simulator **747SIM** (fly your own Jumbo) plus old favourites like **AWARI, TOWERS OF HANOI,** and many more besides. A very full disk

GSX User's Disk

Order no:	**AP005**
Price:	**£15**

The complete GSX tutorial from Lindsay Doyle — includes a library of ready-to- use **Basic subroutines** that drive GSX, a set of five printable **Workshops** in text form (this series is running in APRICOT FILE now), **demo programs**, and Lindsay's improved HEXPAWN game **IMPHEX** (which among other things demonstrates something not unlike artificial intelligence).

Games No. 2

Order no:	**AP006**
Price:	**£15**

Another diskfull of Apricot entertainment. Includes **CLEWDO** (solve the mystery), **TRUCKER** (get a cargo across the States on time), and some games for the younger Apricot user (**SPELL** and **HANGMAN**). Plus for the first time a GWBASIC version of **STARTREK** (noises and all) and **BACKGAMMON**

Games No. 3 — Great Britain Ltd

Order no:	**AP008**
Price:	**£15**

Only two games on this disk, but both excellent and quite realistic entertainments. **GREAT BRITAIN LTD** is a political-economic simulation — be Prime Minister, balance the books, win the election too if you can. And **INHERITANCE** is an interesting investment/gambling game; you could get hooked on both!

Apricot Disk No. 4

Order no:	**AP007**
Price:	**£15**

More indispensible tools and utilities. Highlights:
ASMGEN dissassembler
132-column screen configurator
memory speed test benchmarks
improved version of **SETUP**
DIARY year-planner
LABEL address label printer
BANNER prints fancy letterheads with your daisywheel printer

Demo Disks

Try before you buy? Here's your opportunity to check out our selection of some of the best Apricot packages — and to do so without a salesman hassling you to write a cheque for them. All disks are priced at £15 including despatch and VAT.

BusiPost

Order no:	**AD002**
Price:	**£15**

British mailing list package - fast and flexible. [Not available for the Apricot F1]

Letterer-Set

Order no:	**AD005**
Price:	**£15**

Utility that lets you print on any dot-matrix printer any typeface that can be displayed on your Apricot screen.

MicroSight

Order no:	**AD008**
Price:	**£15**

Everything you need for digitising an image and several facilities for manipulating it.

PC Programmer

Order no:	**AD009**
Price:	**£15**

Program generator that lets you produce complex applications software with minimal effort and no need to learn a programming language.

Praxis MicroChart Plus

Order no:	**AD010**
Price:	**£15**

All-British business graphics package, ideal for presentation of spreadsheet data etc. [Not available for the Apricot F1]

Cardbox Plus

Order no:	**AD011**
Price:	**£15**

Particularly good demo for one of the best 'flat-file' records-keeping packages. [Not available for the Apricot F1]

Special software

This collection represents our first attempt at purveying conventional packages: these are not public domain items, and they are not discount deals on the kind of software your dealer will sell you. Instead we have gathered a few titles that (a) we feel will be useful to the average Apricot user and (b) you won't

find easily — or at all! — anywhere else.

FAST Apricot Screen Accelerator

Order no:	**AS001**
Price:	**£25**

The rumour is that the designers of the Apricot chose to put various screen- handling impedimenta deep within the BIOS in order that it should not compete on performance too strongly with its then stablemate, the Sirius. And these screen delays have remained there ever since.

Until now. FAST is an accelerator for the Apricot screen: it bypasses certain screen interrupts. Simply running it in an AUTOEXEC.BAT will cause your Apricot to handle screen text up to *twice* as quickly. FAST doesn't affect CPU clock speeds and so it does not accelerate your graphics or supercharge your program execution times. But its effect on screen performance is pretty impressive.

FAST is very compact, less than 650 bytes; and it's modest price reflects that. For the money you won't find any better way of speeding up an Apricot with a single-line AUTOEXEC command. *[No effect on colour displays, though.]*

BPS Disk no. 2 — RAMdisk with WordScan

Order no:	**AS002**
Price:	**£40**

The **RAMdisk** is better than the Apricot's freebie; the **Wordscan** word/line/character counter is *very* fast and always useful for anyone who writes text on their computer. Normal RRP is at least £70.

POLYPRINT

Order no:	**AS003**
Price:	**£30**

Pretty printing from your Apricot on any matrix printer — POLYPRINT lets you produce near-letter-quality printing (almost typesetting quality, in fact) on ordinary dot-matrix printers that are capable of printing graphics (which these days means just about any low-cost matrix printer). Menu-driven, uses only nine keys. Comes with 12 selectable typefaces, some of them very fancy. Accepts ready-to-print output from any word processor; will also work directly from WordStar files without your having to save them on disk first. *You must specify which printer you have when ordering — POLYPRINT comes customised for particular printers.*

POLYPRINT PLUS

Order no:	**AS021**
Price:	**£20**

For existing POLYPRINT users only: 13 new typefaces and additional facilities including the new capability of mixing typefaces in the middle of a document.

The Apricot Catalogue

Order no:	**AS004** [ASCII]
Order no:	**AS005** [CardBox]
Price:	**£50**

A list of all the software and hardware we know of for the Apricot with prices, addresses, description (with our comments when we have experience of the package), contact names and numbers (including Telex numbers) where we know them. Based on the lists originally printed in 16 BIT COMPUTING, but regularly updated by us; currently well over a megabyte of information on six disks. The ASCII format can be read by most word processors or simply TYPEd, the CardBox format can be read by CardBox Plus and comes with a .FRM format (but not with the file manager program itself!).

ASD — the professional's SuperWriter disk

Order no:	**AS006**
Price:	**£57.50**

Formerly known as P.A.S.D.: this is the latest (and much improved) version of the first (and only?) independently-produced package of upgrades to and tools for SuperWriter — produced by a couple of professional writers (one of them being our columnist David Langford) for people who want to make the most of the word processor. A packed disk, and a good piece of work. Highlights:

- **two-column** formatting and print
- expansion, improvements, correction for the **dictionary**
- full documentation of **SW.DEF** plus a collection of useful formats
- improved (and more legible) **display font**
- **keyboard configuration** presets to speed up keying
- many **XQT** files to accelerate and simplify your routine work
- several batch files for **disk housekeeping**

AnsibleIndex

Order no:	**AS022**
Price:	**£86.50**

Sophisticated SuperWriter indexing utility, even permits indexing of subjects and themes. Can handle documents chained across more than one disk, too. Only requires two marks per index item.

AnsiblePatch

Order no:	**AS023**
Price:	**£15**

Patches SuperWriter to improve the legibility of displayed text on F series Apricots and Portables.

IANKEY Crash Course

Order no:	**AS007**
Price:	**£48**

The very best keyboard tutor we've seen for newcomers — beats TOUCH 'N' GO into a cocked hat. Sensible design based on serious research; clear on- screen instructions; takes only three or four hours to teach the basics of touch-typing. Our review concluded "I strongly recommend it as excellent value for money" — especially from DEALS FOR READERS, because the normal RRP with VAT and P&P is £58.65.

IANKEY Two-Fingers to Touch-Typing

Order no:	**AS008**
Price:	**£48**

An alternative keyboard tutor — converts a two-fingered 'hunt and peck' typist into a fast user; and it does so without wasting your time, forcing you to relearn the keyboard, or boring you stiff. Included in the enthusiastic review conclusions, and again available from us at a price £10 below RRP.

FORTRAN Utilities

Order no:	**AS009**
Price:	**£50**

A collection of assembler utilities for MS-FORTRAN applications, complete with test programs and link instructions. Includes:

- set date and time
- current date and time
- get/change default drive
- delete/rename disk file
- read/get character from keyboard buffer
- print characters on printer

DO-TO-ALL

Order no:	**AS010**
Price:	**£15**

Handy for hard disk users and anyone with multiple subdirectories: DO-TO-ALL lets you issue just one command that is to be applied to *all* directories — to delete all BAK files in your subdirectories, for instance.

The FTU

Order no:	**AS011**
Price:	**£125**

The very best file transfer package we know of; we use it all the time, and that's not just because it's written by Friedman. A complete kit that enables you to transfer files between the three most popular machines — IBM PC, Apricot, and Victor/Sirius. Includes software for all three, and an 'intelligent' RS232 cable that will configure itself correctly for connection between any two of the computers. Our price is over £50 below RRP!

MXDUMP

Order no:	**AS012**
Price:	**£75**

Another classy little number from the programming pen of Friedman — produces exact screen dumps from your Apricot display on a standard Epson MX dot- matrix printer. Once loaded it sits quietly in MS-DOS waiting for you to call it (with a single keystroke). Lots of options: specify text or high-resolution graphics, normal or bold, standard- or double-width: and more ...

The Lotus Pack

Order no:	**AS013**
Price:	**£65**

Useful utilities from **S&S Enterprises** for Lotus users.

- **THEPOUND** lets you use all the displayable Apricot characters in worksheets — including the pound sign
- **SOLID123** consolidates several 1-2-3 or Symphony worksheets into a total
- **TRANSPOS** transposes rows and columns
- **123RANGE** lists worksheet ranges

BACK2123

Order no:	**AS014**
Price:	**£30**

Translates Symphony .WRK files into 1-2-3 .WKS format. Converts data, labels, formulae.

The Printer Pack

Order no:	**AS015**
Price:	**£40**

Mainly for Epson-compatibles, mainly for spreadsheets:

- **SIDELINE** prints worksheets sideways so that wide spreadsheets fit on to the paper
- **FXPOUND** prints the pound sign on FX-type printers
- **SETFXPR** provides a set-up menu for printer functions

The Word Processing Pack

Order no:	**AS016**
Price:	**£50**

Three more handy S&S utilities:

- **WSASCII** converts WordStar files to ASCII format so that they can be read by other word processor
- **WORDNO** word counter
- **READAGE** calculates the reading age (ie the comprehensibility) of text
- **SEARCH** searches text for given phrase

The First-Aid Kit

Order no:	**AS017**
Price:	**£25**

Just what you need to make your computer more palatable to novice uses — the **DOSMENU** front-end option-choice menu and the **HELP** dial-an-explanation facility

The File Protection Pack

Order no:	**AS018**
Price:	**£60**

SECRET makes files invisible (or visible again) to DIR searches, **READONLY** sets the attribute bit so that they can't be deleted or overwritten, **ENCRYPT** encrypts and decrypts files according to your

password, **ZAP** deletes them so thoroughly they can't be 'undeleted' at all

Hardware extras

Expansion Memory Boards

128KB	AH001 £85
256KB	AH002 £140
512KB	AH003 £195

High-quality add-in memory cards from a well-known manufacturer at prices we think you'll find hard to beat — bearing in mind that they *include* VAT and despatch. The 512K board is particularly good value, perfect for RAM disks and big SuperCalc worksheets.

Books

The Good Computing Book

Order no:	**AB001**
Price:	**£3.00**

A tubby and packed paperback for beginners. Mostly a reference dictionary of computing terms, but also lots of introductory info. Claims to offer "everything you need to know and nothing you don't".

All prices include VAT and despatch. Send your order with payment to:

APRICOT FILE
TP Group
PO Box 509
London N1 1YL
England

Cheques should be made payable to TP GROUP.

Note that we can only accept payments in Sterling, that we must have prepayment except for official Purchase Orders, and that Purchase Orders can only be accepted for orders totalling £50 or more.

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Just let us have a sheet of paper (or preferably a disk) with the words. To summarise the requirements:

- indicate which classification you'd like it to appear
- use a typewriter or printer if possible — disk is even better. If you handwrite it, please try to ensure legibility
- the first couple of words will be in capital letters for emphasis. Indicate where you want the emphasis if it's not clear
- don't forget to include an address and/or phone number (we won't be operating a box number service)
- please try to limit yourself to 50 words or less

Send your ad to:

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P O BOX 509
LONDON N1 1YL

Help

■■■ BUSINESS MICROCOMPUTER USERS ASSOCIATION holds meetings quarterly to exchange experience of software package (eg modelling, database, graphics) and receive presentations on new ones. Membership £25 pa plus £10 per meeting (includes lunch). Information from Val Warden (chair) on 044 282 6774 oU Tony Martin (secretary) on 01-236 0233.

■■■ HELP GROUP FORMING: Apricot users within striking distance of Reading, Berkshire, and interested in forming a friendly group to give and receive help on programming, communications, software packages and anything else legal (!) are invited to contact David Holland on Reading (0734) 68860 — evenings only.

Wants

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History

Outside Apricot

An insider's view

By Nick Wilson

Currently there's a good deal of speculation about precisely what is going on at Apricot plc.

There have been redundancies, there have been losses, there have been sweeping management changes: and most of the musings about Apricot's present and future is centered around those facts.

But the bulk of the comment comes from people who have no idea about what Apricot is like from the inside. The reflections in this article are based on my time as an employee of Apricot's Advanced Technology subsidiary from July 1983 to July 1985: more up-to-date information is provided by some friends who left (or were pushed) as recently as November.

Advancing Technology

I started working for Apricot when it was 'ACT'. The Apricot had been launched but was not yet being shipped: the system software was being completed at ACT Advanced Technology, the factory was being completed in Glenrothes.

The Advanced Technology group consisted of four software engineers, three hardware engineers, not many managers, and a receptionist. The site was a georgian mansion in Dudley which had once been a Conservative Club.

The group had been going for about eight months when I joined to write the technical reference manuals (a spin-off from writing for an excellent magazine called SIRIUS COMPUTING — indeed, I owe our venerable Editor much).

The whole 'Advanced Technology' idea came from Roger Foster: it was going to be ACT's key to the future, a hotbed of British R&D. But it started off as the Pulsar programmers working on Pulsar Mk II, a file-oriented program development system called 3-D.

The Pulsar accounts products, which were being sold enthusiastically to Sirius users via the dealer network, were looking distinctly aged.

The packages and the programming methodologies developed for them all had their origins in a suite of programs originally produced for the Computhink 800, an eight-bit Commodore PET lookalike for which ACT had the UK marketing rights (a venture that eventually led to ACT taking a majority stake in the US manufacturer — an investment which had to be written off the following year as the company in question failed).

So 3-D was going to be the basis of a complete rewrite. It was also going to be one of the bundled offerings with the new Apricot: much was made of 3-D at the mid-1983 Apricot launch, though by the time the computer actually started arriving in the dealers' showrooms four months later 3-D had been discreetly dropped — the Sorcim bundle (SuperWriter, SuperCalc, SuperPlanner) had replaced it.

Why? Well, unfortunately the person responsible for the 3-D software walked out long before the product was completed. So a few excuses were made to the public and the product was dumped on the back burner. Sirius floppies that were reformatted for future use in Advanced Technology thereafter still tended to have labels on them saying 'Dave's Master 3-D Development Disk' and the like ...

Fruitful work

The company that actually designed the Apricot PC was called QED (now renamed Sector Design). Basically QED presented the Apricot to ACT on a plate: the deal was that ACT would write the systems software, QED would maintain the hardware.

The relationship between ACT Advanced Technology and QED was very relaxed in the early days; by the time I left, though, it was a love-hate relationship — with the love emanating primarily from the MD of QED and applying largely to his products.

The first shipments of Apricots were dogged with problems in both hardware and software. The most entertaining hardware problem was 'snow' on the video monitor, but all the systems software releases were poor — very slow, taking up a lot of memory.

The BIOS was a particular headache. It was written in Pascal, which made it especially slow and especially large; it was also bogged down with obscure and usually unnecessary functions that had been included because no-one dared to sort out the 'wish lists' produced by the many design and/or liaison committees.

Daft 'features' included the 40K of reserved graphics RAM — completely redundant if you weren't using graphics — and a disk cache which undermined MS-DOS's own built-in cacheing.

Eventually most of the early problems went away as a result of a vast amount of effort and a few late nights from the software engineers. In January 1984 Advanced Technology moved from the wilds of the outer suburbs to a more tasteful address at Edgbaston (closer to ACT House, a white pillbox that had formerly housed the AA).

Along with the enlarged premises came a significant increase in the number of staff — at the peak, there was around 80 people employed. A few hundred thousand pounds was spent on equipment: a VAX for software development, Apollo workstations for PCB and circuit design.

And the principal reason for this investment was the 'Rascal' Project, the 'F' series Apricots. When the designs for the Portable and F1 were completed, work began on both machines simultaneously.

There was a very busy period from January 1984 until just after the launch in June 1984. Heady times: a large number of extra people were employed throughout Apricot, and money was being spent like crazy.

As every new day dawned, so did a new version of the BIOS. The marketing people wanted a blue screen colour background, the technical people wanted black: that argument went on for weeks. And in the New Year of 1985, the total year-long efforts of two people were thrown away — one was the DIARY facility, the departure of which distressed none of us; but the other was the B-tree search routine once described as "the cornerstone of all ACT applications" in the future.

Product design

The typical way in which a product was designed in ACT was that Roger Foster would come up with an idea for a product in association with Peter Horne. Dr Horne is head of Advanced Technology; and at that time in particular he was the Golden Boy of ACT — 'ask for money and ye shall receive it'. His wife often thought up the codenames that were used for products ('RASCAL' was hers).

There was a weekly development meeting at Advanced Technology, attended by senior management and usually QED/Sector Design. My doleful presence was requested at only one of these meetings; and having been dazed like any 17-year-old by the car park (Bentleys, Porsches, Mercedes, Jags ...) the whole thing felt like being called up in judgement at the Last Trump. When Roger Foster came up with an idea, nobody argued.

After Foster and Horne had finished their design specification, it would be thrashed around by the minor managers. Since they wouldn't really understand what had to be done on the software side, they passed it to the technocrats — who promptly did what they liked and bullshitted to management that they were actually meeting the Foster spec.

Key work did start in a few major areas. Networking was the important one, but characteristically ACT approached it by rushing in two different directions at once. The ill-fated Point 7 network based on Concurrent DOS was error-prone; and nobody on the technical side thought it a feasible product — after all, an Apricot on its own couldn't run WordStar as fast as a Sirius: so how could anyone believe in seven copies of WordStar all being executed at once?

There were two sides in Advanced Tech software development by this time. The rump of the old ACT International company was being wined and dined by Digital Research; another group was getting the same kind of treatment from Microsoft. Roger Foster liked internal competition, and he obviously had plenty of money to throw around; so he sanctioned much of the parallel work — Digital Research's Point 7 went ahead, so did the Microsoft-based Point 32.

For the real technical people in Advanced Tech, the Microsoft line was the predicted winner: and in the event, the marketplace concurred.

But Point 32 was consuming masses of software development time. There was no-one at Advanced Tech who had worked on networks in any great depth before, so much of the direction came from outside consultants, of which there were about 10 in Advanced Tech at the time. Most of the low-level code was being written by people who really didn't understand what a network should be. Even a young lady from Victor was imported from the States to 'help out' for a week. (Rumour had it that she was paid £600 a day — more even than Roger Foster.)

And the F1 and the Portable were subjected to major redesigns: they were just so slow. Everything was tried to speed them up, from a new processor (the NEC look-alike chip for the 8086) to wholesale software rewrites ... but all to no avail.

Which leads me to one of my tasks. You may remember that CHKDSK on ACT machines used to say '8096 Bytes in Bad Sectors' on most hard-disk systems. I was told to "do something about" this: so I changed the text to read "8096 Bytes Unavailable", CHKDSK was Beta-tested, and it was shipped without question!

Happy daze

When the recent redundancies happened, the word put out to the press was that only clerical staff were dismissed. In fact things were more far-reaching than that: the person who designed most of the hardware for the Xen was chopped, and so were some of the key software guys. As far as I know, about ten people have left the R&D arm of Apricot since I did in the summer of 1985. all the contract staff have been dismissed: and the moral of the place must be rock-bottom.

Despite all I've said, it is fair to point out that Advanced Tech was a great place to work; I'd be surprised to find anyone there who does not look back to the Dudley days with affection and reverence.

The word from the shop floor today is that no new products are being designed in Advanced Technology. Could it be that Apricot is planning to scale down their R&D and buy in products from other companies (like Sector Design, who designed the original Apricot PC)?

All I can offer is conjecture, but I remember something that Roger Foster said a long time ago on a promotional video — "ACT's policy is to put more into tomorrow than it takes out today". Perhaps a bit less is in order ... ◆

Notebook

Low-brow backup

Using KNEW in a batch file

by David St John Wallis

This .BAT file uses the KNEW and TOUCH utilities from DEALS FOR READERS disk no. AP003 to perform an automatic backup to floppies for the contents of an Xi.

It's a pretty elementary piece of help that was written to counter-balance all the hi-tech stuff you have read elsewhere in these pages. If you haven't already thought of doing this, then save £224.50 on the CLIP disk.

It's about backing up with a hard disk. You know about backing up — that's what you just hadn't done when your hard disk tries to skid over a piece of salami. The system I use takes seven floppies, nicely labelled MONDAY through to SUNDAY — at the end of each day you back up on to the appropriate disk.

Of course you have to label each disk (well, you don't *have* to, but it's prettier and more sensible that way). There are four ways of doing this:

- use a fibre-tipped pen and write on the sticky label
- or get one of those metallised-ink pens (about 99p) and write directly on to the plastic
- use VOLSER.COM from DEALS FOR READERS disk AP003 to put a label track into the disk (it works now)
- do the same thing yourself with DEBUG — but *not* on a hard disk. If you have DEBUG (DEALS FOR READERS disk AP003 again), put a blank formatted disk in drive B and do this (don't type the bits in brackets):

```
debug              (this calls DEBUG)
l 100 1 7 1        (this starts the listing)
e 100 'Sunday'     (puts Sunday on — bonus hint: e
                   100 'Monday' puts Monday on!)
w 100 1 7 1        (writes Sunday into the label
                   slot)
q                  (returns to MS-DOS)
```

On the whole, it's easiest to use a pen.

OK, you've labelled your disk — use the VOL command to check it. Now, MS-DOS has the COPY command; you can use this. But APRICOT FILE has KNEW.EXE, which is much better — it's on disk AP003 and copies only 'new' files, meaning those with a time and date of creation more recent that their last backup.

Here's what you do if you have some directories labelled, let's say, BATCH, CARDBOX, BRAIN, SUPER, CAL, and MAIL. There's also one called COPY.DAT, of which more later.

If you have KNEW.EXE, enter the batch file and call it something like DAILY.BAT. It's safest to use COPY CON or EDLIN to write it; you can do it with a word processor, but remember to save it in ASCII format — for SuperWriter that means using SYSTEM format, WordStar victims use Non-Document Mode, and so on.

Now all this presupposes you use file extensions to differentiate your stuff. Some are put on automatically by the program in question, like .BRN for Brainstorm, .CAL for SuperCalc, .FRM and .FIL for Cardbox. For word processing it is useful to append sensible extensions yourself — if you're writing to the bank manager, say, use .MON for 'money'; writing to the Great Jarrett you might extend by .APF for 'APRICOT FILE', you see. Hot stuff, this! Told you it was low-brow ...

What the batch file does is peek into each subdirectory and copy all those bits which match the file extension on to the floppy. With KNEW this is pretty quick. With COPY it's not as fast — typically three times slower.

You *can* of course use COPY in the batch file instead of KNEW, in which case the syntax is COPY *.MON B: ... and so on.

The great beauty of KNEW is that it only copies files you have changed in some way, whereas COPY copies everything and wastes a lot of time if you already have perfectly good unmodified files. But there is one snag: if KNEW thinks the destination disk is full, it may delete the file it is trying to copy. Solution — run CHKDSK to make sure that you probably have enough space. Or remove all the DEL commands in the batch file that follows. Or use a fresh disk. Or go to India and forget all about it.

The batch file also selectively deletes things you may not want on your hard disk, placing them for safety not only on the floppy but in a special directory called COPY.DAT.

If you want to be a bit cleverer, you could create a lot of other subdirectories for copying back from your floppy on to the hard disk. To do this you'd make subdirectories within COPY.DAT on the hard disk which correspond to the relevant file extensions. For example, within a COPY.DAT directory you could have sub-sub-directories labelled MON, FIL, BRN, CLI, LET, APR and so on.

This would be a batch file called, say, SUBSUB.BAT that might go something like this:

```
CD\COPY.DAT
MD MON
MD FIL
... etc
```

... and so on. The idea behind this is that all your files can then be nicely stashed in discrete bits of the hard disk. This makes it easy to sort them by

date, size or whatever. Of course, you can write a sort function into DAILY.BAT if you want to. It just takes a lot longer to run ... unless you use the QUICKSORT utility from OMRC Computers (*which happens to be David's company — Ed*).

DAILY.BAT is quicker than CLIP. If you run this twice on the same day you will find it is very quick indeed — and quicker still if you use the OMRC Computers utilty QuicK, like *lightning* if you have our SpeedboarD with Microcache (plugs).

One last thing: put the REM commands in reverse video. They're easier to check that way when the file is running.

There are probably heaps of better ways of doing this using plenty of parameters and FOR commands. But they area bit of a drag unless you are into Boolean algebra or have at least a semblance of logic between your ears. This works for me ... ◆

DAILY.BAT

```
ECHO ON
CLS
A:
CLS
CD\BATCH
B:
VOL
PAUSE              IS THIS VOLUME LABEL OK FOR
TODAY? A:
KNEW A:KNEW.EXE B:/P
CLS
A:
CLS
REM                COPYING CARDBOX FILES
CD\CARDBOX
B:
KNEW A:*.FRM B:/P
KNEW A:*.FIL B:/P
A:
CLS
REM                COPYING BRAIN FILES
CD\BRAIN
B:
KNEW A:*.BRN B:/P
KNEW A:*.DOM B:/P
KNEW *.SEC B:/P
A.
DEL *.BAK
DEL *.DOM
DEL *.SEC
CLS
REM                COPYING COMMS FILES
CD\COMMS
B:
KNEW A:*.MAI B:/P
KNEW A:*.SEC B:/P
A:
DEL *.MAI
DEL *.DMP
DEL *.SEC
CLS
REM                COPYING .CAL FILES
CD\CAL
B.
KNEW A:*.CAL B:/P
KNEW A:*.PRN B:/P
A:
DEL *.PRN
CLS
REM                DEALING WITH SUPERWRITER FILES
NOW
CD\SUPER
B:
KNEW A:*.MAI B:/P
KNEW A:*.MON B:/P
KNEW A:*.DIC B:/P
KNEW A:*.DOM B:/P
KNEW A:*.APR B:/P
KNEW A:*.CLI B:/P
KNEW A:*.SPL B:/P
KNEW A:*.BAK B:/P
REM KNEW A:*.BR B:/P KNEW A:*.OMR B:/P
REM KNEW A:*.ORI B:/P KNEW A:*.CAR B:/P
KNEW A:*.SUL B:/P
KNEW A:*.V1 B:/P
KNEW A:*.SEC B:/P
KNEW A:HEAR*.* B:/P
KNEW A:*.ENQ B:/P
A:
DEL *.MAI
DEL *.MON
DEL *.DOM
DEL *.APR
DEL *.CLI
DEL *.SPL
DEL *.BAK
DEL *.BR
DEL *.OMR
REM DEL *.ORI
DEL *.CAR
DEL *.SEC
DEL *.SUL
DEL *.ENQ
CLS
A:
CLS
CD\BATCH
CLS
REM                COPYING TO COPY.DAT
CD\COPY.DAT
B:
KNEW B:*.MAI A:/P
KNEW B:*.MON A:/P
KNEW B:*.DOM A:/P
KNEW B:*.APR A:/P
KNEW B:*.CLI A:/P
KNEW B:*.BR A:/P
KNEW B:*.OMR A:/P
KNEW B:*.ORI A:/P
KNEW B:*.CAR A:/P
KNEW B:*.SUL A:/P
A:
CLS
REM                COPYING TO OMRC
CD\OMRC
B:
KNEW B:*.SEC A:/P
KNEW B:HEAR*.* A:/P
KNEW B:OMRC*.* A:/P
KNEW B:*.ENQ A:/P
CLS
A:
DEL *.BAK
CLS
REM                RETURNING TO BATCH
CD \BATCH
REM                THAT'S ALL THE FILING DONE
```

Accessing GSX from Turbo Pascal

How to do it — and stay sane

by Quentin King

It was with complete amazement that I discovered on reading APRICOT FILE that someone (Lindsay Doyle) had managed to glean anything useful from Digital Research's *GSX GRAPHICS* manual. Hitherto I had thrown this indecipherable garbage on to the top shelf of my bookcase and left it there to gather dust. Lindsay Doyle's column renewed my interest and was the inspiration for this article

I have since taken another look at that manual,and driven by a sense of challenge I've written the procedure Pascal_GSX for communicating with GSX from Turbo Pascal. This procedure uses one of Turbo's programming tools for mucking about with the system.

How Basic does it

If you want to use GSX with Basic, two files have to be loaded into the memory before the Basic interpeter — GRAPHICS.EXE and GSXBAS.COM.

The Basic statement CALL tells the interpreter to run a little subroutine at a specified location in the memory and wait for it to finish before continuing with the Basic program; and GSXBAS.COM loads just such a routine into memory.

This passes the parameters required to communicate with GSX from Basic on to GRAPHICS.EXE; it runs GRAPHICS.EXE; and then it restarts your Basic program from where it left off. Forget to load the routine — and you're left staring at a blank screen.

A Turbo Pascal program can pass these same parameters via the Intr procedure (and, for that matter, a similar procedure can be used to drive GSX from any other language that's able to call Interrupts). The first time you try to call GSX from Turbo in this way you may be left with the distinct impression that 1+1=3.

You might have seen the Intr procedure demonstrated in the back of the Turbo Pascal manual; there's a program there that can obtain the time from the system. Calling GSX requires exactly the same Type and Var declarations.

Interrupts

When an interrupt is called, the processor stops what it is doing and executes a special routine. Then it returns to the job it was doing before the interrupt occurred. It's all very similar to the CALL function in Basic, except that Intr can make *direct* calls to the system.

A complete list of the system interrupt calls and the parameters required by each call can be found in the *MS-DOS PROGRAMMER'S REFERENCE GUIDE* from Microsoft. Here are some that I regularly use:

- GET DISK FREE SPACE
- AUX INPUT
- AUX OUTPUT
- SELECT DISK DRIVE (changes the default drive)
- CURRENT DISK (returns the name of the current default drive)

Use the example shown here or the one in the back of Borland's manual as a simple programming frame; you'll find that any of the routines in the Microsoft manual can profitably be put to work.

Depending on the type of interrupt, different registers are used. Not all of the registers require values to be assigned to them to call an interrupt procedure.

Now, GSX is called with Interrupt 224 (decimal) and a function code of 0473 (hex) is placed into register CX. What's passed to this interrupt is the location of a block of memory that holds five four-byte addresses; these are the addresses of the five arrays used in your applications program to define what you want GSX to do. These five locations are known as *pointers*.

The address of this block is labelled aspblock in my program GRAPHICS.PAS; the offset of the address is placed in register DX, register DS holds the segment.

The program

GSX works well enough, and I'm not very keen on David Langford's suggestion that one should follow a winding path to graphics *without* GSX: that sounds a bit tricky at the very least, and more likely the recipe for a nervous breakdown ... *(but see David's Disinformation column in this issue).*

Still, he may have a point. GSX is a copyrighted package that's currently supplied with Apricot computers: but will GSX always be part of the bundled software? And will programs written today that access GSX still be useable by future computer buyers without them having to pay extra for GSX?

Besides, GSX takes up a lot of space; without at least 384K of start-up memory, it's hard to do anything very useful. And it's a slow and messy business having to load a number of different programs via a batch file before a specific application will run.

Oh well. GRAPHICS.PAS is not intended to tell you how to *use GSX* — see Lindsay Doyle's GSX Workshop series for insights on that. It does show you how to call GSX from Turbo Pascal.

Remember you *must* still load the program GRAPHICS.EXE before running Turbo Pascal.

Last word

The graphics you'd want to produce would normally a small part of a larger program, there to enhance the understanding of the data or messages.

If you only wish to create such things as block graphics, say for a simple graph, in my opinion you're better off making a display font and loading it into one of the other font locations — then use it by issuing a control code such as:

```
write(£14); turn on second character font
write(£15); turn off second character font
write(£27+'*'); turn on the third character font
```

Yes, that's right — the *third* font! ◆

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GRAPHICS.PAS

```
Program Graphics;
{ fill style constants }
Const
hollow    = 0;  halftone = 2;
solid     = 1;  hatch    = 3;
vlines    = 1;  hlines   = 2;
diaright  = 3;  dialeft  = 4;
cross     = 5;
{ use of Pascal constants aids readability and
reduces unwanted bugs }

{ array types }
Type
str80                = string[80];
ar_type1             = array[1..9] of integer;
ar_type2             = array[1..79] of integer;
ar_type3             = array[1..200] of integer;
ar_type4             = array[1..45] of integer;
ar_type5             = array[1..12] of integer;
{ Here we have set up the five types of array
that GSX requires as parameters. Note they are
the same as the arrays used in Lindsay Doyle's
Basic examples in his GSX Workshop series }

Var
a1:ar_type1; a2:ar_type2; a3:ar_type3;
a4:ar_type4;a5:ar_type5;
counter          : integer;
txt              : string[80];

Procedure Clr_ar;
begin
fillchar(a1,sizeof(a1),0);
fillchar(a2,sizeof(a2),0);
fillchar(a3,sizeof(a3),0);
fillchar(a4,sizeof(a4),0);
fillchar(a5,sizeof(a5),0);
end;

Procedure Pascal_GSX(p1:ar_type1;
p2:ar_type2;p3:ar_type3; p4:ar_type4;
p5:ar_type5);
{ This procedure calls interrupt 244 and tells
GSX where to find the address of `pblock`: that
contains the addresses of the five arrays used to
pass information to GSX. I have not used the
'var' prefix on these parameters — this means
that any manipulation done on the variables
outside the procedure will have no effect on GSX
unless they are passed directly to this procedure
}

Const    s =  2;  o  = 1;
Type
registers =  record
ax,bx,cx,dx,bp,di,si,ds,es,flags: integer;
   end;
{ record for calling interrupt }
pointer    =   array[o..s] of integer;
Var
reg              :   registers;
pblock           :   array[1..5] of pointer;
ah,al,ch,cl,dh : byte;
{ these register subdivisions are not needed for
calling GSX }

begin
pblock[1][o]:=ofs(p1);      pblock[1][s]:=seg(p1);
pblock[2][o]:=ofs(p2);      pblock[2][s]:=seg(p2);
pblock[3][o]:=ofs(p3);      pblock[3][s]:=seg(p3);
pblock[4][o]:=ofs(p4);      pblock[4][s]:=seg(p4);
pblock[5][o]:=ofs(p5);      pblock[5][s]:=seg(p5);
{ 'pblock' is loaded with the addresses of the
parameter arrays }

with reg do
 begin
 cx := $0473;
{ the function code for interrupt 224 }
 ds := seg(pblock);
{ ds holds the segment address of 'pblock' }
 dx := ofs(pblock);
{ dx holds the offset address of 'pblock', so
together ds and dx make up a four-byte pointer to
'pblock' }
end;
intr(224,reg);          { call interrupt }
end;                    { end of proc Pascal_GSX }

{ the following are Pascal translations of the
Basic procedures found in Lindsay Doyle's series.
The one main difference is the inclusion of a
routine to scale x and y to fit a screen size of
800 x 400 }
Function XScale(x:integer):integer;
const Xmultiple = 40.95875;
var xreal        : real;
begin
if x > 800 then x:=800;
{ checks that x is not out of range — very
important, since the multiplication of xreal will
then exceed the limits of GSX and your program
will abort }

xreal:=x * Xmultiple;
XScale :=round(xreal);
end;

Function YScale(y:integer):integer;
const Ymultiple = 80.9175;
var yreal        : real;
begin
if y > 400 then y:=400;
yreal:=y * Ymultiple;
```

```
YScale :=round(yreal);
end;


Procedure Open_W_Station;
var counter:integer;
begin
a1[1]:=1;a1[2]:=0;a1[4]:=10;
for counter:=1 to 10 do a2[counter]:=1;
a2[6]:=1;
Pascal_GSX(a1,a2,a3,a4,a5);
end;


Procedure Write_Txt(x,y:integer;t:str80);
var counter   : integer;
begin
x:=XScale(x);
y:=YScale(y);
a1[1]:=8; a1[2]:=1; a1[4]:=length(t);
a3[1]:=x; a3[2]:=y;
for counter:=1 to length(t)
doa2[counter]:=ord(copy(t,counter,1));
Pascal_GSX(a1,a2,a3,a4,a5);
end;


Procedure Set_Txt_Ht(h:integer);
begin
a1[1]:=12;a1[2]:=1;a3[1]:=0;a3[2]:=h;
Pascal_GSX(a1,a2,a3,a4,a5);
end;


Procedure Draw_Line(x1,y1,x2,y2:integer);
begin
x1:=XScale(x1);
y1:=YScale(y1);
x2:=XScale(x2);
y2:=YScale(y2);
a1[1]:=6;a1[2]:=2;a3[1]:=x1;a3[2]:=y1;
a3[3]:=x2;a3[4]:=y2;
Pascal_GSX(a1,a2,a3,a4,a5);
end;


Procedure Line_Type(t:integer);
begin
a1[1]:=15;a1[2]:=0;a2[1]:=t;
Pascal_GSX(a1,a2,a3,a4,a5);
end;


Procedure Draw_Bar(x1,y1,x2,y2:integer);
begin
x1:=XScale(x1);
y1:=YScale(y1);
x2:=XScale(x2);
y2:=YScale(y2);
a1[1]:=11;a1[2]:=2;a1[6]:=1;a3[1]:=x1;a3[2]:=y1;
a3[3]:=x2;a3[4]:=y2;
Pascal_GSX(a1,a2,a3,a4,a5);
end;


Procedure Fill_Style(s:integer);
begin
a1[1]:=23;a1[2]:=0;a2[1]:=s;
Pascal_GSX(a1,a2,a3,a4,a5);
end;


Procedure Fill_Type(t:integer);
begin
a1[1]:=24;a1[2]:=0;a2[1]:=t;
Pascal_GSX(a1,a2,a3,a4,a5);
end;




Procedure Draw_Circle(x,y,r:integer);
begin
x:=XScale(x);
y:=YScale(y);
a1[1]:=11;a1[2]:=3;a1[6]:=4;
a3[1]:=x;a3[2]:=y;a3[5]:=r;
a3[6]:=0;
Pascal_GSX(a1,a2,a3,a4,a5);
end;




{ Start  of main program }


{ zero the arrays before starting — you never
know what might be lurking in them }


Clr_ar;


Open_W_Station;


Clr_ar;  Fill_Style(Hatch);
Clr_ar;  Draw_Line(50,50,50,350);
Clr_ar;  Draw_Circle(400,300,3000);
Clr_ar;  Draw_Line(50,50,750,50);
Clr_ar;  Set_Txt_ht(2000);
Clr_ar;  Write_Txt(50,4,
    'GSX demonstration by Quentin King');
Clr_ar;  Set_Txt_Ht(1000);
Clr_ar;  Write_Txt(260,250,
    'This Circle is filled with hatch');


Clr_ar;  Draw_Bar(100,50,150,100);
Clr_ar;  Fill_Style(solid);
Clr_ar;  Draw_Bar(150,50,200,200);
Clr_ar;  Fill_Style(halftone);
Clr_ar;  Draw_Bar(200,50,250,230);
Clr_ar;  Fill_Style(hatch);
Clr_ar;  Fill_Type(hlines);
Clr_ar;  Draw_Bar(250,50,300,100);
Clr_ar;  Fill_Type(dialeft);
Clr_ar;  Draw_Bar(300,50,350,150);
repeat until keypressed;




{ close workstation }


a1[1]:=2;a1[2]:=0;
Pascal_GSX(a1,a2,a3,a4,a5);
end.
```

News

Sign here

Nearly a third of UK companies fear their computer systems are vulnerable to fraud — but they only admitted this when pushed. So says Ernst & Whinney, one of the bigger accountancy firms, whose initial survey of 400 companies suggested that computer fraud was identified as a possibility by only 3 per cent of respondents; but in a follow-up poll, a third admitted they could have underestimated computing fraud. Ernst & Whinney also reckon that over half of Britain's companies have experienced at least some kind of fraud ...

Canon comes to Europe

Presumably because demand is hotting up (we're on our second), **Canon** is to make its laser printers in Europe. Its French subsidiary is adding the capacity for 7,000 LBPs a month to its existing copiers-and-typewriters plant in Brittany. Incidentally, Canon says it's shipping 16,000 laser printers a month to Apple and Hewlett-Package — quite apart from its own-brand sales.

Apricot moves ad agencies

Apricot's advertising is on the move from the big London agency **Colman RSCG**. Birmingham-based agencies will gain. Was it the cost of spending **£1.2m** with Colmans in flat market (MEAL figures to September 1985)? No, it seems the intention is to react more swiftly: "It is so difficult for a large agency to move at the speeds we do" said marketing manager **James Blackledge**. This means more in-house origination of artwork and home-grown creative skills: "we do the creative work and invite a pitch from local production houses". Production work on a budget of **£1.5m upwards** is expected in 1986/87: to April, £500,000 worth is being channelled through Brum — in particular to **Robin Crashaw Associates**.

Welcome the British network

The **British Microcomputer Manufacturers Group** (prominent non-member: Apricot plc) says it's doing Real Well with its Very Own All-British local area network project. No fooling around with MS-NET and NETBIOS, y'see. And when will we have this exciting new standard? Next year, probably. Whose products? "The number of participants and their identities, and whether non-members of BMMG are involved, cannot be disclosed at this stage."

Big deal down-under

Apricot's Australasian agent **Barson Computers** beat 29 other suppliers to what looks like Apricot's biggest ever export order — the Public Service Board of New South Wales is taking a lot of everything from Xens to F1s. Apricot isn't putting an actual value on the deal, but says it could represent fully five per cent of its sales this year; that could make it about £5 million. Apricot has had 30 per cent of Barson since the Australian company went public last year.

New Penman: very clever

Penman Products' clever little robot plotter, a cable-connected mouse which scuttles around a flat sheet of paper, has acquired a Mk II version. **Penman II** can now cope with decent-sized media, up to A0 size: it still works with most computers (RS232 connection) and most CAD software (emulates HP7475A or 7585) while giving a resolution of 0.035mm at a plotting speed of 50mm per second. It all compares well with conventional flat-bed plotters. The IIE is the A0 version at £695; the range starts with the A3 Penman IIB at £395. Penman is on **0903 209081**.

New Epson: very neat

The latest from printer leader **Epson** also looks like the best — it's the LQ- 1000, the 136-column version of the £595 LQ-800 near-letter-quality matrix printer; Epson says the 1000 is easier to use and quieter. At **£795** it's not especially cheap, but you do get really good NLQ from its 24-wire print head.

New digitiser: nice price

Environmental Equipments is the first main distributor to be signed by **Cherry** for its **CPA3** digitiser — RRP just **£550**, which makes it the cheapest A3-size digitising tablet we've seen. Info from **0270 625115**.

Hayes hopes

Yet another freebie sub to **Telecom Gold** — recently-arrived top US modem-maker **Hayes** is giving it to the buyers of its fancy but overpriced **Smartmodem** 1200bps modem. Hayes is also offering discount subscription rates on three dial-up services: Dialog, KnowledgeIndex, and Nexis.

Computerworld lives

It's short-lived venture with Apricot may be defunct, but **Tandy** is still opening **AT Computerworld** stores — four new stores in the next few weeks, bringing the total to 16.

First contracts

Is there money in High Street retailing of computers? **First Computer**, the retail chain which made so much noise when it started 18 months ago, is shutting one of its three Central London outlets.

Sticky fingers

Problems with the Return key sticking on your PC or Xi? Could be that it was assembled with the spring in the wrong place — there are two posts under the L-shaped Return key, and many machines went out with the spring on the *upper* one. Should be on the lower post. Lever up the key and check. It might also be worth dropping into a model shop or a friendly garage to get a beefier spring; the 'ha'port of tar' approach is much in evidence on that bit of the keyboard ...

Instant upgrade

Seems that a year or so ago ACT was shipping Apricots with only only disk drive controller ... meaning that single- and double-sided machines both went out with electronics and the disk drives capable of handling double- sided disks. If you can get hold of a copy of FORMAT that will format both sides, it could be worth trying this — you may well have a double-sided machine!

Standards for electronic mail?

Why are there only 45,000 electronic mail users in Britain? A recent survey by **One to One** found that 56 per cent of non-users were "greatly deterred" from electronic mail by incompatibility between competiting systems — like you can't send and receive between Telecom Gold, Comet, Easylink and One to One. So One to One wants to set up a **European Electronic Mail Association** to promote standards. It has a point; they all link to the Telex network, so most of the technical problems of compatibility have been solved. Besides, there's an internationally-agreed standard called X400 which can be followed; British Telecom should have this available next year in the form of its Message Handling System, though it will mean an extra charge to subscribers. In the meantime, One to One wants e-mail services to promote intercompatibility: to simplify commands for it: and to guarantee transfer of messages between such systems within 10 minutes of their input. It seems Telecom Gold and Comet have already agreed to this lot in principle, so it may even happen.

Data Protection revisited

Halfway through the six-months registration period, the **Data Protection Register** includes only **8,500** companies out of the 300,000 or so that are expected to qualify. Revenue to date of **£187,000** compares with the £6.6 million expected for the end of the registration period (11 May). Some **150,000** application packs have been distributed, but only **10,000** applications have been received. There are around **50 people** trying to process application and queries, against a projected staffing of 20. And a further **£200,000** is to be spent on advertising. On top of that, we hear that the Data Protection Registrar's shiny new office in Wilmslow still doesn't actually have the appropriate planning permission ...

Market shares

The 1985 survey of the UK micro market by **Romtec** has **IBM** out in front with 41 per cent of installations (against 25 per cent in 1984). **Apricot** is no. 2, with 15 per cent (no change). **Apple** slips to third with 7 per cent, where it's joined by **Olivetti**.

New maintenance services

Bell Technical Services reckons it's Europe's major computer maintenance company. Could be — it's a combination of Cable & Wireless Services and General Computer Systems fostered by the money of Bell Canada, and that means 2,000 man-years' experience, 360 staff, 7,000 customers, 20 offices ... You'd expect something different from that kind of outfit, and you're getting it. One is a hot-line software support service called **Highway** for IBM PC users; more interesting to us is the **Custodian** service, which works as an alternative to a maintenance contract — you buy a £250 book of 'cheques' and spend them as and when you call Bell. Most micros and peripherals are covered, with three types of services: *Counter* (you bring it in), *Economy* five working days), *Express* (eight hours). Sample prices: Apricot Xi at £90, £110 and £140 respectively: Epson FX/MX series £60, £80 and £110. More information: **01-898 9631.**

Tact corner

Last month British Telecom placed an ad in *Communications Management* magazine with the copyline "Our technology is much less obvious. But it's every bit as spectacular". The ad showed the space shuttle *Challenger*. ◆

We have a new address and a new phone number. In practice this means we've moved out of the spare rooms in the Editor's flat and into an office just behind Kings Cross station (adequate rather than salubrious, but you wouldn't want us to waste your subscription money would you?). Here's the new telephone number:

01-833 3501

The mailing address remains the same (**PO Box 509, London N1 1YL**) but for personal visits and deliveries we're at:

Unit 4
47-51 Wharfdale Road
London N1 9SE