Any **questions?**

Frank Leonhardt sifts through his postbag to see whether he can be of assistance in problem areas.

Q "We have been trying to set up a US Robotics Sportster 28,800 to receive faxes automatically. Our plan is to receive faxes in background while the PC is being used for other processing, and print them later.

The PC is a 486 DX33 with 8Mb RAM running Windows 3.11. It will be running WordPerfect 6 for DOS, under Windows and Access 2.0. These may be open together, and it is possible that Lotus 1-2-3 R4 for Windows will also be open.

Is it practical to expect this system to cope without slowing the foreground application? If so, what fax software would you recommend? Quicklink II, as supplied with the modem, does not cope. It usually causes the PC to grind to a halt and the fax link to crash. Would you recommend upgrading to Windows 95, more RAM, or something else?"

The TACS Partnership

To get anything running alongside Access 2 in 8Mb of RAM you'd be doing well! For anyone running more modest applications, Delrina Winfax should do the trick and it doesn't slow things down too much. However, I wouldn't attempt it in your case as most of the programs you have there are well-known resource hogs.

I use a full-sized office fax machine which is designed to run day and night, for years. They are initially quite expensive to buy, but having the ability to receive faxes without fuss is important to me and to my clients.

If you must have your faxes arriving on a PC, I'd seriously suggest you get another small one to dedicate to that purpose and leave your existing machine alone. Sod's law says that your spreadsheet will decide to crash in the middle of receiving any important message, and unreliable communications are a real pain.

Windows 95 won't help you unless you upgrade your machine's RAM. For the selection of applications you propose, I'd recommend 24Mb as being sufficient. Windows 3.11 has its own fax software integrated with MS Mail, but it is rather awkward to use and is noticeably less efficient in terms of resource use than Winfax.

Going into overdrive

"I have a problem identifying my overdrive chip. I don't know if it is a socket 3, 5, or 7 type. I have an IBM PS/1 (manufactured in 1993). There is a 486 SX33 chip stuck to the motherboard and next to this is the overdrive chip. Right now, there's a 486 DX2/66 Intel overdrive chip in it, and I don't know what overdrive processor I can install.

The information I can give you about the overdrive processor is that where the overdrive socket is stuck to the motherboard, every pin connection from the chip to the board has a number or letter next to it. On one side there are numbers 1 to 19 (meaning 19 pins), and on the other side there are letters A to U (meaning 21 pins). If, from this information, you can figure out what kind of overdrive processor it is, I will be very much obliged."

Rishid Shah
Nairobi, Kenya

You can never tell whether a particular overdrive processor is going to work until you try it. However, you should be able to plug a P24T Pentium Overdrive 83MHz into your machine.

Intel has recently priced this overdrive chip to about the same as a 486DX4/100, making it pointless to consider this lesser chip as a cheaper alternative. There's one catch: the BIOS in some machines won't work with a P24T. As far as I know, the Award BIOS has always been okay, though. The AMI BIOS, unless it's within the last couple of years, has to be changed.

Before buying any overdrive processor, make sure the dealer knows what it is going to be for and is prepared to take it back if it fails to work. Although a chip may work in most machines of a particular type, you don't want to end up being the exception!

386 to 486 conversion

"I have a 386DX40 motherboard fitted with an AMD chip, with 128Kb cache and an IIT 387DX40 co-pro. According to the motherboard manual, it is possible to upgrade to a 486DLC 25MHz chip but this doesn't seem like a worthy upgrade. The current 386 processor fitted is of a surface-mount type that is soldered directly to the motherboard. It also has an unused space that is marked for a 386DX processor. There are jumpers on the motherboard that allow 25MHz, 33MHz and 40MHz configurations.

My questions are: firstly, is it possible to purchase a 486DLC 40MHz or similar

Frank's Bargain Basement

Two readers have taken me to task over my advice to T. Mancini in *Computer Answers* (May), where I wrote that £600 would not be enough to buy a PC capable of running current software releases. Both pointed me toward advertisers whose headline price appeared to prove me wrong.

Since I wrote that piece, RAM has fallen in price by over 50 percent, easily saving £100; but even now I still maintain that a machine suitable for current applications will cost more than this.

If you read the small print, you discover that the £499 "bargain" 486 machines come with certain important parts missing. You wind up paying extra to upgrade the memory to a usable 8Mb, then add a mouse, an operating system, postage, packing and VAT. Remember that current applications need a CD-ROM drive to install them (also extra).

One company in particular, mentioned by both correspondents, has around 30 outstanding County Court judgements against it and is well known by myself as well as the local trading standards office. I'm hardly likely to recommend them in these pages!

● *So here's a challenge: what is the cheapest new Windows 95 machine available? It must have 8Mb of RAM, a CD-ROM drive and all the necessary keyboards, mice, monitors and software (on CD-ROM), a year's warranty and be on sale to the public.*

We're all DOOMED... or are we?

Doom and disaster will visit all computers one year before the end of the millennium. It's true! By the time you read this, questions should have been raised in Parliament about the year 2000 bugs, and the government will be whipping up a right bally-hoo about it. The theory goes that when computers' clocks change from 1999 to 2000 it will expose bugs in lots of software — and there is some truth in this.

Early last year, I asked readers to perform a little test to see whether their PCs' clocks could cope. Most didn't. (If you want to try it yourself, set the clock to 31st December 1999 at 23:55 and turn the machine off for ten minutes.) Over 80 percent of PCs you tested thought it was something other than the 1st of January 2000 when turned back on. And, before any more smug Amstrad 1640 owners write to me, I know this is an honourable exception!

It will be an annoyance, certainly, but I haven't yet found much in the way of PC software which suffers a serious problem. Mainframes are a different story, as most of their software is written using COBOL. Unlike modern programming languages which store years as full binary numbers, a lot of COBOL-type software packs a two-digit year into eight bits using a system called Binary-coded Decimal.

So why is there such a problem? Consider a program which checks to see whether a 25-year life insurance policy has matured. The logic might be "if this-year minus starting-year equals 25, then pay-out-time". This is fine if you are subtracting 1980 from 2005, but disastrous if the years are only two-digit (i.e. 80-05).

*Will the end of the millennium take your PC by surprise? Find out by zooming it forward to the year 2000...**

Mainframe users will doubtless be hiring self-styled year 2000 experts, at exorbitant rates, by the coachload. Some of these will try to make you think your PCs are in great danger, too. They're almost certainly not, but if you want to be sure, all you have to do is back up all your data, set the clock to 2000 and see what happens.

My free advice to mainframe managers is to start dealing with it now. Either that, or convert all your investments into gold bullion and book an extended Christmas break in 1999. Two years should be long enough.

clock-doubled chip?; if so, will it work on my motherboard? Next, would the co-pro need to be changed if upgrading is possible? And finally, what would be the price of such an upgrade, and would it be too expensive to be worthwhile?

A performance increase of a factor between 50 to 100 percent only is required and I am happy to de-solder the current 386 chip if necessary."

A. Knight
East Sussex

I'm afraid you would be wasting your time trying to upgrade this motherboard. The 486DLC was actually a special 486-compatible chip which fitted into a 386 socket. It wasn't as fast as a standard Intel 486, but it did support 486 instructions.

However, this is all academic as I've been unable to track down anyone who still sells the chip, and I am unaware of anything else you could use to get a reasonable performance boost for the money. Cyrix does a set of 386 to 486 converters, the fastest of which operates at an external clock frequency of 33MHz and costs £150. For the same money, you could buy a new 486DX4/100 motherboard with 16Mb RAM. Add about £50 for a reasonable Pentium 75. If your budget is really tight you may be able to find an old motherboard (£50) which would take your 30-pin SIMMs and use a 486DX2/66 compatible processor in it, costing around £20.

SIMMple explanation

"I am considering buying some extra SIMMs to speed up my PC. Friends of mine, to whom I have mentioned this, hold different views: some say, yes, it will speed up; others, who have tried it, have been disappointed with the results. I am now totally confused. Help!"

C. Brewer

During the past few years of high RAM prices, a myth has grown up that processing speed is a function of memory size. This is based on the observation that a machine which runs Windows slowly can be speeded up by doubling its RAM. The belief that increasing RAM size always leads to a speed improvement follows on from this, with some users rating machines by memory size and disregarding the processor entirely.

So what has memory size got to do with speed? Consider an analogy. Supposing you had a Luton van and a motorbike. The bike has the fastest engine (processor) but the van has lots of room in the back. Now suppose you were in a hurry to send a copy of PCW *from London to Oxford. The motorbike is the obvious choice.*

Okay, supposing you needed to deliver 20 copies. Again, the bike would be quicker even though it might wobble a bit. Above 20 copies, though, load carrying capacity comes into play: the van, trundling up the M40 at 50mph, can deliver a large consignment of magazines in far less time than the motorbike (which would take several trips).

So think of the magazines as being the software. When the software fits into the available capacity, the speed of the processor is paramount. As soon as it doesn't fit, the processor has to go mad juggling small chunks.

It's exactly the same within a computer. If the software you are running fits into the machine's working storage (called RAM these days) all will be fine. But try to fit in something too large and you get a very steep fall-off in performance. If you have more working storage than you require, it is just wasted. Unlike the Luton van, you aren't being slowed down by dragging the unused box-shaped coachwork behind you.

PCW Contacts

Delrina 0181 207 3163

• Upgrade Processors:
Powermark 0181 956 7000
Simply Computers 0181 498 2100
Intel 01793 431155

** Film-still from Diamonds Are Forever; courtesy of the National Film Archive*