Speed reading

Put aside that “mine’s faster than yours” attitude when comparing the PowerPC and the Pentium and put some zip into your Mac’s performance. Howard Oakley shows you how.

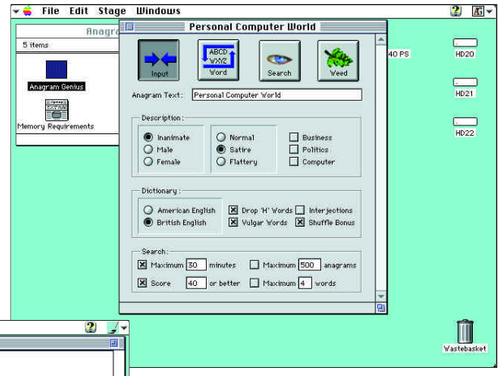
PowerPC processors can be amazingly quick. A friend, whose computer research programs take days to run even on high-end workstations, recently chose to buy a box containing 64 PowerPC processors instead of a supercomputer. Clock for clock, 604 models are quicker than the 601, which are in turn quicker than 603 chips. Those with larger on-chip cache memory and distinguished by an “e” suffix are quicker than those without.

Unless you have a high-end workstation, the internal bus and memory will not be running at anything like the speed of the processor. This is because components which work reliably at high clock-speeds are prohibitively expensive and results in Apple using tricks to match different speeds. This limits the maximum speed to which you can upgrade, but at least you know you will be able to afford the upgrades. This is where Level 2 cache comes in, to provide a faster-than-memory store to allow a very fast processor to access data from slower main memory. Level 2 cache becomes increasingly important as performance rises. A 60MHz PPC601 (the original Power Mac 6100) may get a 10-15 percent speed improvement with as little as 256Kb of Level 2 cache, and little more with larger sizes. Faster PPC604 machines should have at least 512Kb if not 1Mb of Level 2 cache.

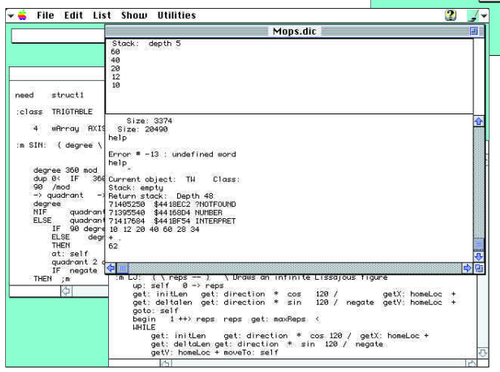
While my friend is getting value for money from his multi-processor system, most Mac users will be unable to discern any difference between single and multiple PowerPC hardware. Until we hear the strains of Rhapsody (this month’s variation on the Mac OS 8 theme) a lot louder and closer, a limited range of applications will be able to do much with a second processor.

All these years after the first Power Macs, it may seem extraordinary that parts of the Mac OS System sofware have still not been ported to run native on PowerPC Macs. Thankfully, the remaining unconverted sections are among the less frequently used parts of Mac OS so you will be unlucky to find applications which are much affected. This is a good reason for using the latest version of the System, as the proportion of unported code has been steadily falling with each new release.

Third-party products should be treated with care. You may need to gain experience of an application and its configuration from the documentation before you can tune it for optimal performance. Although you also need to minimise the number of System extensions and control panels in use, you must do so with care so that you do not inadvertently clobber other extensions.



Above Turning your favourite footballer’s or politician’s name into an anagrammatic travesty is made easy with Anagram Genius. Type in the words to be anagrammed, and the rest is done by your Mac. If you want to find out what “Personal Computer World” creates, you’ll have to buy your own copy



Left MOPS is a free but polished Forth development system, capable of generating shrink-wrapped applications. It is just a shame that it does not yet run native on Power Macs

Tests and measures

Just as you wouldn’t dream of buying a car without a test drive, you should not buy a “serious” computer system before you have had a good session using it. During that time you should try to estimate the system’s performance: don’t just run benchmarking programs like Speedometer, but try out standard tasks using your own application benchmarks. These should not include starting the application up, unless this is something you are likely to do more than, say, once every half hour. Instead, select standard time-consuming tasks such as sorting, searching and printing to disk.

Speedometer can give you insight into specifics of a particular computer’s performance when running highly abstract jobs. Thus it might help you spot deficiencies or problems, such as a slow hard disk. But it cannot tell you whether you will need to make a cup of coffee or a three-course meal while waiting for a job to complete.

Seconds out

Another major issue to bear in mind is that perceived time is very different from actual time. It is easy to demonstrate this if you have an application which provides good feedback during “busy” periods, and one which does not. Hide all clocks and then set each application turn into such a busy period, recording your estimate as to the time you had to wait. Unless your biological clock tunes in to Rugby every couple of hours, you will overestimate the wait incurred by the application with poor feedback, and underestimate that with good feedback. Add that to the fact that your computer spends almost all its time waiting for your input and actions, and the case for the fastest at any cost looks weaker.

Back and Forth

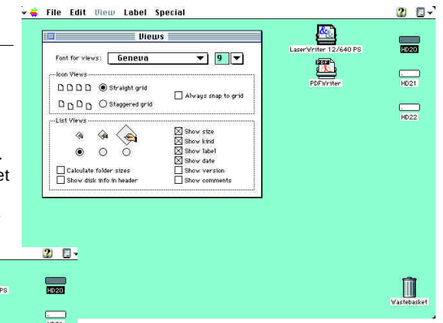
Finally, I want to take you back more than ten years and remind you of a high-performance programming language, Forth. When memory meant 64Kb and hard disks cost a king’s ransom, Forth was commonly used for high-performance real-time systems which had tiny memory footprints. Along came Kriya, who developed an object-orientated implementation for the Mac, sold as Neon. With its demise, they placed the source in the public domain, and it has now blossomed into MOPS, thanks to the loving care of Mike Hore. Although he has not yet completed a Power Mac port, MOPS runs happily in emulation and creates double-clickable applications with real Mac interfaces — free of any cost. Next month I hope to be able to compare it with Power MacForth, a heavyweight commercial implementation.

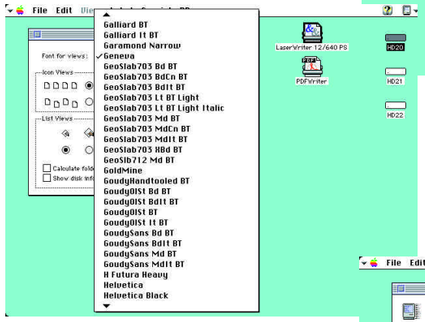
And in case you think this is all anachronism, Apple has just been advertising for Forth programmers, as it is used to program the boot ROM code for the latest Macs, Suns and other modern computers.

How to slow your Mac down

If you’re sure that you want to slow your shiny new Power Mac 9600 down to remind you of halcyon days with a Mac Plus or SE, here are some good ways to do it:

- In the Views control panel, check the box to “Calculate folder sizes”. This makes the Finder painfully slow, as each time it displays a folder in a “list” view, it has to add up the file sizes of every file within the folder. And all its sub-folder...
- Reduce the disk cache (the top item in the Memory control panel) to the smallest possible value. Although you cannot turn it off any more, making it tiny will slow down all disk reading and writing.
- Turn virtual memory (in the Memory control panel again) on and run an application like Adobe Photoshop, which operates its own virtual memory scheme. In fact, if you are running System 7.5.3 or earlier, you won’t even have to use Photoshop, as everything drowns in the treacle of Apple’s old virtual memory. So retrograding to System 7.5.3 could be worth thinking about too.
- Run all your applications with the bare minimum of memory allocated to them.
- Fill your System folder with extensions and control panels, especially if they do not run native on the Power Mac — old 68K extensions can be ideal for soaking up those spare processor cycles. Don’t allow Extensions Manager to turn any off, either.
- Add more fonts than you could ever recognise, let alone use. Then every application and utility which contains a Font menu will have to spend ages putting the list together.
- Use LocalTalk rather than Ethernet networking. Because of physical limitations, the cheaper and simpler LocalTalk networking system is about ten times slower than Ethernet, so moving a few big images around will freeze two Macs at a time.
- Use the 68K Mac version of all applications rather than the latest PowerPC native version. Although the 68K emulator is wickedly quick, it is slow by comparison with a good native port to the PowerPC.





Above Check to “Calculate folder sizes” to spell doom for the Finder’s speed
Left Adding lots of unused fonts to the System folder Below The Memory control panel has enormous influence on speed through each of its setting

PCW Contacts

Howard Oakley is keen to hear from Mac users and can be contacted via the usual *PCW* address or at mac@pcw.vnu.co.uk
Apple Computer is on 0181 569 1199 and has web home pages at www.apple.com and www.euro.apple.com.
Anagram Genius is available for the Mac and Windows, price £24.99 + £1.65 p&p (both inc VAT) from Genius 2000 Software on 0151 356 8000, with further details on www.genius2000.com/
MOPS 2.8.2 is freeware by Mike Hore and available from ftp.taygeta.com/pub/Forth/Mops, with its home page at www.netaxs.com/~jayfar/mops.html
Speedometer 4.0.2 is $40 shareware by Scott Berfield and available from most major Mac archives.