



Across the great divide

The Mac and the PC — two completely different worlds? Not so, says Cliff Joseph, who has tried out some PC emulation software, with rather surprising results.

Regular readers will have noticed that the *Hands On Mac* column is an oasis of sanity, resting serenely in the midst of a lot of, frankly, unpalatable Windows PC stuff. The trouble is, of course, that Windows is pretty hard to ignore: there are times when even the most die-hard Mac user needs to be compatible with the PC world. Macs can read PC disks, and most major Mac and PC applications share a number of cross-platform file formats that allow you to easily exchange files with PC users. However, there are times when you may need to run software that simply isn't available on a Mac.

Mind the gap

The Mac has always been short of certain types of software. Games software is probably the most obvious example, but there are many business applications that have never been available on the Mac. FileMaker is one of the few cross-platform databases available for both Mac and PC, and there's not much in the way of accounting software either. And, if your organisation has some sort of legacy DOS software that is still being used, you can bet that nobody is going to volunteer to rewrite it just for the Mac. But at long last, PC emulation on the Mac is becoming a truly practical proposition. And, just as we were preparing to go to press, SoftWindows 98 landed on my desk, so a quick review of the Mac/Windows compatibility story seemed like a good idea for this issue.

The first PC emulator for the Mac was Insignia's SoftWindows. That was joined a couple of years ago by VirtualPC from Connectix. There are minor differences, but these two programs work in essentially the same way, using software to emulate the workings of specific PC hardware



▲ WITHOUT A 3D CARD, QUAKE II RUNNING UNDER SOFTWINDOWS 98 IS LIMITED TO TINY SCREEN SIZES

components. VirtualPC 2.0 emulates almost an entire PC system. It provides (in software) a Pentium processor with the complete MMX instruction set. It also emulates a complete motherboard, including an Intel Triton logic chip, an S3 Trio graphics processor and a Creative Labs SoundBlaster Pro sound card. These are all standard PC components, ensuring maximum compatibility with games and other types of software. SoftWindows provides the same basic features, with one or two differences such as better networking options. On top of all this virtual hardware you can then load DOS and/or Windows, depending on your requirements.

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VirtualPC will even allow you to install OS/2. Once installed, both programs allow you to use your Mac peripherals within the PC environment. And because the virtual PC inside your Mac is treated as just another software application, you can have Mac and PC programs running alongside each other and copy and paste information between them.

The biggest issue with software emulators has always been speed. In the past, these programs simply ran too slow to be of practical use. However, things have changed greatly since Apple adopted Motorola's G3 processor across its entire product range. The performance of the G3 allows you to run these PC emulators at pretty impressive speeds. Connectix and Insignia will quote all sorts of benchmark figures to prove that their product is faster than its rival, but there's no doubt that both of these emulators are really quite amazing pieces of software. It's hard to directly compare the performance of an emulated PC with that of a real system, but I'd say that a G3 Mac can provide emulated performance on a par with a Pentium running at 100 to 150MHz. That's not going to break records, but it's enough to handle a wide range of PC business applications at acceptable speeds.

In addition to having a fast processor, the emulation performance will also benefit from having plenty of RAM. You'll need around 16Mb for the MacOS, plus about 8Mb for the emulation software itself. Then add



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however much RAM you want your virtual PC to have. So, if you want to emulate a PC with 32Mb RAM, you'll need at least 56Mb RAM on your Mac. Your virtual PC will also need some hard-disk space so be prepared to free up at least 300Mb of that, too.

The crunch, though, comes when you try to run PC games under emulation. One interesting feature of SoftWindows and Virtual PC is that they allow you to use 3D accelerators based on the 3Dfx Voodoo chips. SoftWindows 98 supports both Voodoo and Voodoo2 cards, while Virtual PC currently only supports the original Voodoo. Installing one of these cards into your Mac takes a lot of the strain off the emulated Pentium processor and provides big increases in performance.

To test this feature I installed a Creative Labs 3D Blaster Voodoo2 card into a 300MHz G3 Mac, with 64Mb RAM allocated to SoftWindows 98. The Voodoo2 card is designed specifically for PCs but Macs use the same PCI slots as PCs, so there's no physical reason why you can't install it

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into a Mac. There's no Mac driver currently available for this particular card so it won't work with Mac games. But when you launch the emulator, Windows will automatically detect the card and prompt you to install the supplied Windows drivers. The results vary a lot



▲ SLOT A VOODOO2 CARD INTO YOUR MAC AND YOU GET *QUAKE II* IN ALL ITS FULL-SCREEN, HIGH-RES GLORY

from game to game. I couldn't get Tomb Raider installed properly, although that seemed to be the result of a problem with the game's DOS setup utility rather than SoftWindows itself. The air-strike game, Incoming, ran rather poorly, but remarkably, Quake II ran at very acceptable speeds – something I really wasn't expecting. The unpredictable performance of these games means that SoftWindows and Virtual PC cannot be recommended to serious gamers just yet, although their performance is still pretty impressive. But let's face it, dedicated games fans are going to buy PCs anyway. For business or home users who occasionally need to run PC business software, emulation really is a worthwhile option.

An alternative to emulation

There is another alternative if PC emulation software is too slow for you. OrangeMicro makes a range of add-on cards which manage to cram most of an entire PC system on to a single PCI card. The latest, the OrangePC 620, is equipped with a 200MHz Pentium processor that can be further upgraded to 300MHz with an AMD K6. It has 16Mb of onboard RAM and 4Mb VRAM.

The OrangePC card provides better performance than software emulators can currently offer, and it

cleverly allows you to switch between Mac and PC modes using a simple keyboard shortcut. The only problem with the OrangePC is that it doesn't work with 3D accelerators.

OrangeMicro is about to release a new card that has a 3D accelerator built in to it and which is aimed specifically at the games market. However, it would still be better if you could use third-party cards in conjunction with those from OrangePC as this would provide additional upgrade options in the future.

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SoftWindows 98 £110 (ex VAT) from Insignia Solutions 0800 667706 www.insignia.com

Virtual PC 2.0 £99 (ex VAT) Win 95, £119.99 (ex VAT) Win 98 from Connectix 0181 200 8282 www.connectix.com

OrangePC 620 Around £600 from Vernon Computer Rentals 0171 720 7000