



Under pressure

If you can't beat the new OSs, **upgrade and join 'em** and reap the rewards, says Benjamin Woolley.

With the launch of Windows 2000 and the promise of Linux 2.4 some time soon, that dangerous thought will no doubt be slowly and insidiously spreading its way through the minds of power users, and certainly of 3D graphics artists: it's time to think about a system upgrade.

One of the real problems with 3D is the demand it makes on hardware. If 3D is your hobby rather than your profession, or if you are a freelance artist rather than an in-house designer, the struggle to keep up to date on what will inevitably be a limited budget can cramp your aspirations and credit limit.

One option is to not bother keeping up. However, physics, 3D painting, particle systems and real-time rendering (features now included in the latest software, even shareware and freeware such as the wonderful Blender) demand more power. These are the tools that make generating 3D content more like an art or craft, and less like a technical programming exercise, so naturally we all want to get our hands on them, and to be able to put them to good use.

So what to do? This is the question I have been personally addressing for the past month or so, as I contemplate replacing my old Pentium II 300MHz system. Upgrading the RAM to 128MB has helped enormously, but now all the other parts of the system are cracking under the strain.

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The obvious solution, finances permitting, is to buy a new system. An 850MHz Athlon is a cost-effective option, or you could select from the range of alternatives reviewed elsewhere in this magazine. However, these are general-purpose systems aimed at office environments, not the silicon studios designed to generate beautiful graphics.



This image of a waterfall, rendered under Windows 2000, relies on the sorts particle systems that demand fast hardware and vast, rolling expanses of RAM. It took 10 minutes and much disk thrashing to render just one frame on my old 300MHz Pentium II system

Furthermore, many users will, I suspect, have several perfectly serviceable parts – a decent monitor and graphics card – that a PC supplier will give you whether you want them or not.

The only other option, then, is a self-build system. Over the past few weeks, I have been scouring the Internet and technical magazines to find out the best mix for building a budget 3D workstation.

Readers can find out about particular products by reading back issues of this

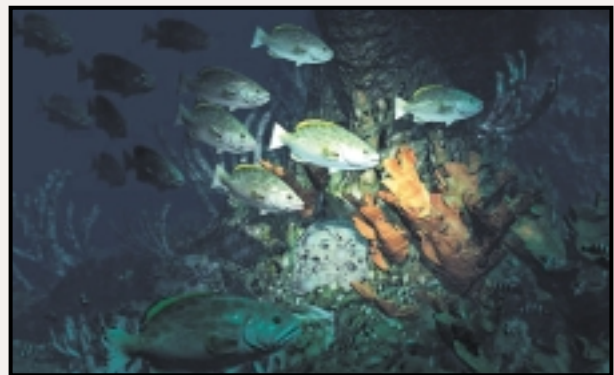
considering a dual-processor system instead, and equipping it with two slower, and therefore much cheaper processors. Most 3D graphics software works well in a dual-processor environment, particularly if you choose to run it under Windows 2000 (see below). Dual-processor motherboards are more expensive, but typically offer performance benefits in other departments, such as on-board SCSI. The Intel 840 chipset, designed for such boards, is getting good reviews.

● RAMBUS memory, supposedly the latest whizz-bang technology, looks like it may be a busted flush. The benefits are questionable, and the chips are horrendously expensive. If you want to cover your options, consider the PCW-recommended SuperMicro PIIISCA motherboard, which supports both SDRAM (currently the most widely used form of performance memory) and RAMBUS. Alternatively, stick to SDRAM and make sure you have plenty of it; 256MB will not prove excessive.

● Motherboards equipped with the latest Intel 820/840 chipsets support the AGP

magazine (for example the group test of motherboards, which appeared in the March 2000 issue, and of hard disks in the April 2000 issue), but here are a few issues that will, I hope, help guide you in the right direction:

● Rather than fixate on buying the fastest processor possible, which will carry an enormous price premium, it is worth



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4X standard (confusingly also called AGP Pro, and based on the AGP 2.0 standard). Many graphics cards now support this faster standard (distinguished on the card by a small retaining lug at the back end of the edge connector). If yours does, aim for the appropriate motherboard. If it doesn't, it's not the end of the world. Recent benchmarking results suggest that AGP 4X offers marginal speed benefits. ● UltraATA66 isn't going to make a difference to the speed of your data transfers, as the fastest hard drives available have a maximum sustained transfer rate of about 10Mbytes/sec. However, some UltraATA66-equipped motherboards, such as those from Abit

and Soyo, can support up to four EIDE devices, so you can have two hard disks as well as a DVD-ROM drive. Ultra160 SCSI, the latest version of the venerable standard, is faster and more flexible, and worth considering if you can afford the substantial price premium.

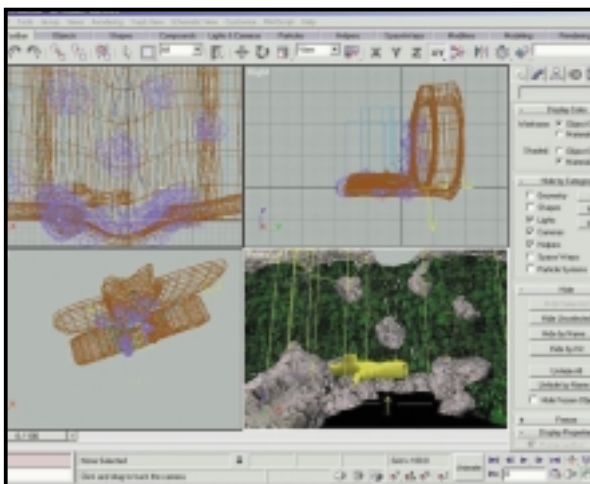
● Perverse though it may seem, if you decide to upgrade your graphics card, don't assume speed to be the top priority when it comes to 3D. In a Windows environment, if not in others, what counts is a solid driver and support for OpenGL and DirectX (see below).

Having sorted out the hardware, there's the question of which operating system to choose. Linux is increasingly attractive, and version 2.4 will support lots of new hardware. If you can find the right 3D and 2D graphics applications that run under Linux (such as Blender or Gig3DGo), it's well worth considering. Make sure you check out the hardware compatibility lists at the Red Hat or SuSE sites before making your final choices on the hardware front.

With Windows, you have a choice between Windows 98 SE and 2000. In theory, 2000 is the one to choose – in fact the only choice if your

system has more than one processor. Its upgraded memory and multi-tasking facilities manage the system more efficiently. I tried it with 3D Studio MAX, and it seemed to behave impeccably, much better than Windows 98 (although there were problems when I tried to install MAX under both Windows 98 and 2000 on a dual-boot system; the shared initiation file did not seem to be capable of coping with two operating systems).

However, a word of warning: at the time of writing, few graphics card manufacturers had produced stable, let alone 'signed' (ie Microsoft approved) Windows 2000 drivers. Without a good solid graphics driver, your system will not be worth the silicon it's running on. Ironically, if you have an old card (such as a Matrox Millennium II), you should be fine. The problems arise with the new ones (such as my AGP 4X Matrox Millennium G400 MAX). There was a beta driver at the time of the launch of Windows 2000 for the G400, which was serviceable, but did not offer proper dual-head or monitor support. A release version was posted on the Matrox website at the end of February, but it wouldn't work on my system. I checked the websites of other graphics card vendors (ATI, Elsa, etc), and nearly all claimed that drivers for their latest cards were 'in preparation'.



3D Studio MAX running under Windows 2000: the benefits are it runs smoother, is more stable and you can run multiple sessions. To take advantage of OpenGL you will need to check that the Win2K driver for your card supports it. The beta driver for the Matrox Millennium G400 handled OpenGL as well as DirectX efficiently

CONTACTS

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