WORKSTATION

Genesi Open Desktop Workstation

Powerful yet inexpensive PowerPC workstation aimed squarely at the Linux market
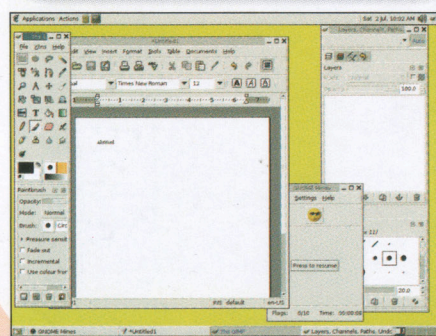

Inviting comparison with the Mac Mini, yet designed with GNU/Linux in mind, Genesi's Open Desktop Workstation packs in a decent level of expandability which raises it well above its small white neighbour

Though Apple's support for the PowerPC architecture may be waning, it's still very much active within industry and thanks to Genesi and GNU/Linux its life powering desktops may well be extended

Attentive readers will know from last month's edition that LinuxUser and Developer doesn't consider Apple's impending move to Intel processors as signalling the end of Linux on the PowerPC. There are several manufacturers producing high-end PowerPC systems, but the problem until now is that most are developed for military, embedded and development markets and are thus too expensive for ordinary users to even consider. Thankfully the Open Desktop Workstation (ODW) from Genesi is neither costly nor simply a Macintosh into which Linux must be shoehorned. Instead, it's an affordable desktop computer featuring a PowerPC 744x (G4) CPU, built around open standards, and intended to run multiple operating systems with the key one being GNU/Linux.

The obvious comparisons to be made are with Apple products, specifically the Power Macintosh G5 and Mac Mini, these being the best-known desktop PowerPC machines. A comparison with the Power Macintosh G5 is difficult as the Open Desktop Workstation is a very different machine. The G5 is based on the IBM PowerPC 970, a 64-bit processor while the Open Desktop Workstation is based on the Freescale PowerPC 744x (G4), which is a 32-bit processor. On the other hand, the Mac Mini offers a much better comparison. The Mac Mini is a fine machine but its intended market is the low-end home user. It lacks internal expandability, only has a single slot for RAM and uses a relatively slow 2.5 inch hard drive.

The Open Desktop Workstation is based on Genesi's Pegasos II motherboard and features plenty of room for expansion. There are four slots on the machine; three PCI and one AGP. Out of the box, two are occupied by video, with both DVI and VGA outputs as well as two S-video TV-outs. The machine also has two Ethernet ports, one Gigabit and one 10/100, four USB 1.1 and two FireWire (IEEE1394) outputs alongside plenty of legacy connectivity RS232, IEEE1284 and PS/2. Internally there are two ATA-100 IDE channels, one of which offers an 80 GB hard drive, and two 184-pin 256 MB 266 MHz DDR RAM modules. Even CPU upgrades should be a fairly simple matter; simply plug in and go. On our test unit, some basic assembly was required, but this was simply a case of inserting the CPU card which is supplied secured in bubble-wrap for safety during shipping. Unlike Apple's PowerPC computers, there is a lot of fan noise from the ODW, however as the PowerPC G4 is known to run cool, simply disconnecting the PSU fan puts an end to that problem. There is an additional small and almost silent fan on the CPU which should be left in place. A nice bonus is the fact that the optical drive is actually a dual layer DVD±RW unit.

Like the Mac Mini, the Open Desktop Workstation does not come with a display, keyboard or mouse but nearly all such USB devices will work fine. We tested it with a Logitech wireless keyboard and mouse, both of which worked flawlessly without the need for special drivers.

The Open Desktop Workstation is the only commonly available PowerPC computer which is actually designed to run desktop Linux. It's perfectly possible to run Linux on the Mac Mini, but it wasn't designed to do so and can only be done thanks to the sterling reverse-engineering efforts of the likes of Terra Soft Solutions. In comparison to the clock frequencies of Intel-based systems, the ODW, running at 1 GHz, sounds slow but in everyday use it simply isn't. As any Apple Macintosh owner will tell you, direct comparisons of speed across vastly differing CPU architectures is not accurate, but with the PowerPC 744x (G4) there's more to it than that. For pure number-crunching an IA64-based system will probably run faster, but the Open Desktop Workstation is no slouch on everyday tasks, both simple and complex such as video encoding and decoding, thanks to Freescale's AltiVec unit.

Debian, Ubuntu, Yellow Dog and Gentoo are all installed on the ODW as standard. The machine boots first to Open Firmware. Doing nothing will cause the machine to boot Debian. Alternatively, you can choose to boot Ubuntu (Hoary), Yellow Dog 4 or Gentoo or drop to the Forth-based Open Firmware prompt. All are robust and basically identical to their Intel counterparts, except YDL which offers no direct comparison, other than Red Hat. After testing all of the included distros we wiped the hard drive and installed Yellow Dog Linux from the boxed edition reviewed a few months ago and it worked flawlessly, though some documentation from the Web was necessary.

For the first time, a dedicated PowerPC Linux workstation is available at a price equivalent to an ordinary Intel or AMD-based PC. Desktop users will find that running Linux on PowerPC can cause some additional pain when it comes to commercial and non-free software. For instance, there is no Flash player for PowerPC Linux, so you'll have to make do with free software alternatives such as Swfdec or GPLFlash.

Thankfully, most GNU/Linux software is free and has been compiled for multiple architectures, of which PowerPC is really only second to IA32/x86. Developers will be interested to know that the ODW comes with a complete open source toolchain. Macintosh emulation is also possible through the use of Mac-On-Linux, but this doesn't work straight out of the box and is already becoming a moot point due to the inexpensive Mac Mini and Apple's forthcoming move away from the PowerPC architecture. The ODW is an excellent computer at a good price. As long as you don't mind being slightly outside the Linux mainstream, anyone looking for a new Linux workstation should consider it without hesitation. Of course, if you're already working with PowerPC Linux or intend to develop for the platform, be that in the desktop or embedded space, it's hard to see the Open Desktop Workstation as anything other than perfect.

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