

Super Falcon

In search of news about the elusive Phenix computer, Shiuming Lai went to the spring 1999 Atari Messe in Germany...

11:00am. First thing I saw upon entering the exhibition hall was our editor on the Atari Computing stand, working hard to entice German punters with the latest edition of the magazine and a big box of sweets. After a brief chat it was straight off to meet the Centek team. Sales of the CENTurbo I Falcon accelerator have topped 350, while the newer CENTurbo II has already shipped 192 units, and I was all the more intrigued and drawn by the little laser show. Strange swirling patterns and dot formations were cast onto the wall, interspersed with words and pictures.

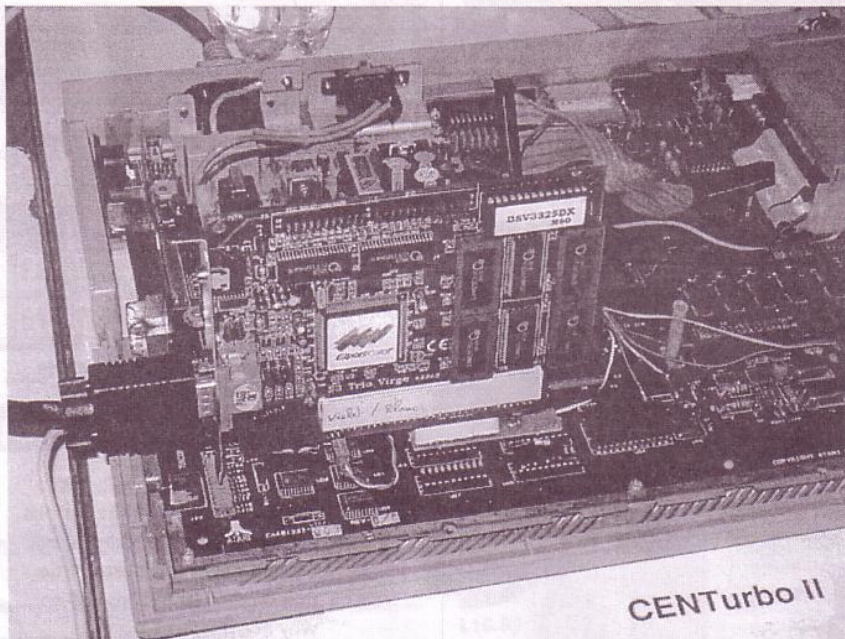
It turned out this laser was being controlled by Falcon, and the result was very neat and professional.

Centek has joined forces with a special effects company called Class 4, which supplies industrial strength laser and pyrotechnic display systems running on CENTurbo II powered Falcons. I spoke with the commercial director, Dominique Caeytant, who has previously worked on the visual aspect of French electronic musician Jean Michel Jarre's concerts (famous for stunning lasers and high-tech open-air imaging).

He explained some of the facts behind a very loud and colourful video recording on show, demonstrating some of Class 4's installations, at concerts and exhibitions using multi-kilowatt water-cooled lasers and fireworks. If you fancy some really exciting peripherals for your Falcon, this could be it!

Two laser operators/artists explained how the system works with a real-time demonstration. In essence, Class 4's custom software suite can perform event sequencing (including firework release) and laser head control for actual image synthesis.

On our screenshot you can see a resemblance to music software in some respects, particularly the theme of time. As well as animation, the software has powerful text handling capabilities.



▲ Centek's Falcon PCI adapter card was made purely to test and demonstrate the graphics capability of Phenix, so, no chance of getting hold of one even if you have the old CENTurbo II with expansion bus through-port

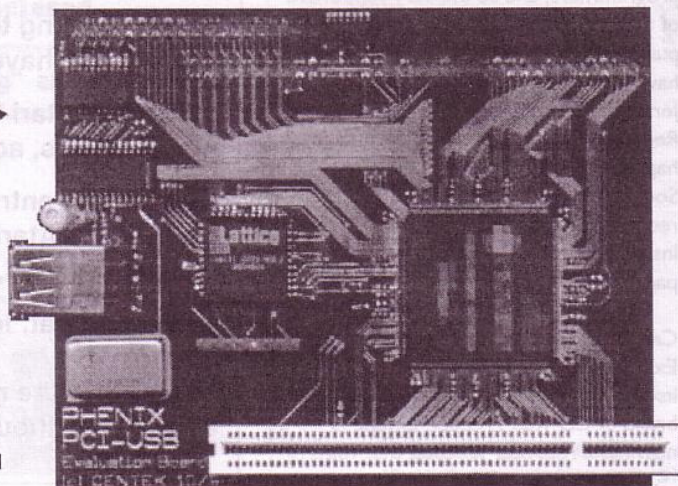
Where is all this leading to?

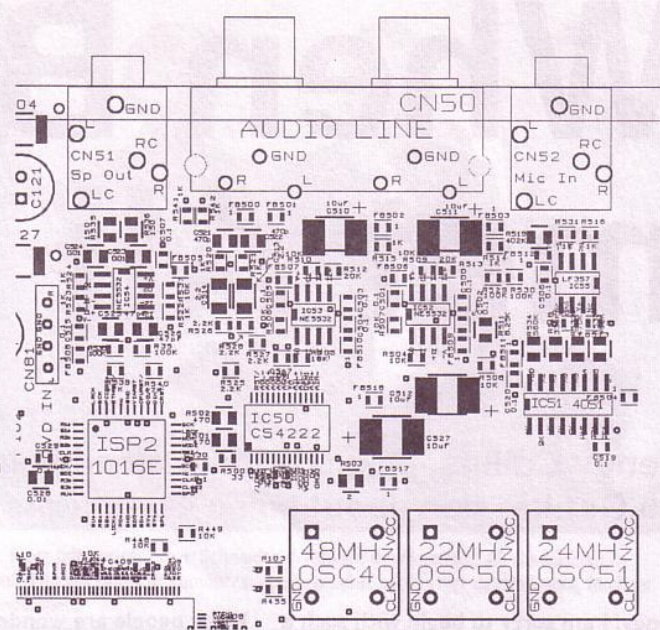
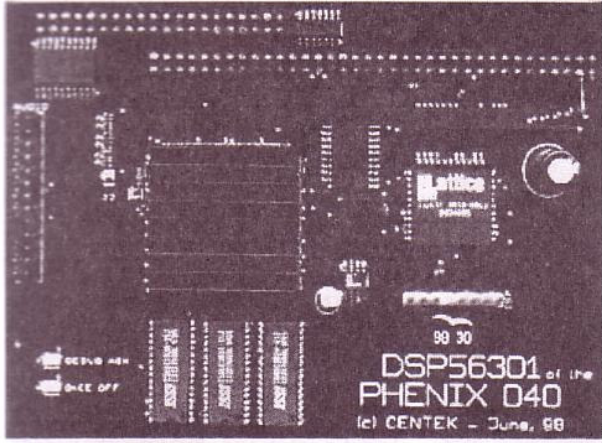
Falcons haven't been manufactured for years, so there needs to be a new computer for this system to run on and develop into something even more powerful. Enter the Phenix workstation, a machine considered by many as a Super Falcon. Originally aimed at existing Falcon users, the co-operation with Class 4 led to the idea of also using Phenix in embedded and control applications.

We were given a tantalising preview of the current status of Phenix. Starting with real working bits of PCB and silicon, implementations of two major sub-systems from the Phenix design were shown, in the form of evaluation cards made to plug into the expansion bus through-port of the early, Rev. A CENTurbo II Falcon accelerators. One of these was PatriCla, containing a Motorola/PCI bridge with a single PCI



► Phenix is planned to accept devices of the USB family via this interface, once integrated onto the motherboard





▲ The DSP56301 on this card was originally clocked at 80MHz (execution rate of 80 million instructions per second, compared with 16 MIPS at 32MHz in the Falcon's DSP56001). It has now been tested reliably at 100MHz

▶ This tasty-looking bunch of components is the audio section of the Phenix

socket, a USB port and controller IC. The PCI socket was occupied by a S3 Virge DX PCI graphics card, which should be the standard card supplied with Phenix. This Falcon was running some TOS programs under emulation using a developer version of Centek's Dolmen OS, in a high dimensional resolution 1024*7688) with 16-bit colour depth.

Next was the DSP56301 and 20-bit audio system. In this age of demanding A/V tasks, dedicated signal processing hardware is essential to any computer laying claim to proficiency in this domain. Together with a sophisticated audio system, these are the two most important features of the original Falcon design and will continue to be for its successors.

Centek's CAD station is a CENTurbo II Falcon with 60MHz VIDEL (don't try

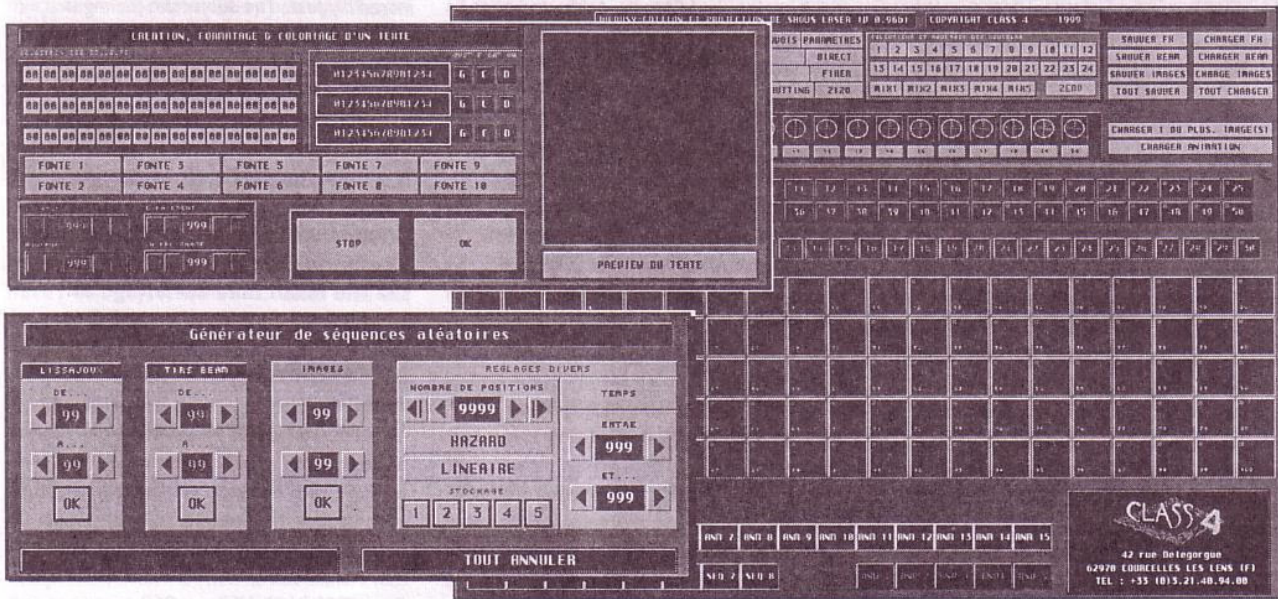
this at home, kids). All of its electronic circuit board design is done on this computer using a commercial PCB layout program called Platon. I can't think of a more productive use for Atari computers than developing the next generation of machines for us to enjoy.

Rodolphe Czuba, hardware engineer, explained the various parts of the Phenix motherboard design. Presently there are three PCI sockets, one of which will be for the graphics card. The possibility of a fourth socket depends very much on availability of space in the final stage of completion, and is not a prime concern at the moment. Most important now is to finalise the glue logic and track routing for the secondary CPU socket.

One completed sub-system is the audio circuitry, having passed prototyping.

A CODEC chip houses integrated A/D and D/A conversion, just like the Falcon, albeit with 20-bit resolution and much more consideration given to the auxiliary components. This is no PC game card noise generator; the whole Phenix motherboard is embellished with EMI (electro-magnetic interference) filters placed at strategic points to ensure it runs on clean power, especially critical if you want to achieve high quality audio.

Meanwhile, Centek's programmers were on hand to show the power of the Dolmen OS and Phenix software development tools, like CENTinel, the multi-processor debugger with independent CPU/DSP tracing and inter-processor transaction monitoring. We'll be keeping you informed of progress with more news as it happens. ☺



▲ Class 4's laser system is like a seriously heavy duty Jeff Minter's Trip-a-Tron. Whack on those Floyd albums!