

AmigaOne X1000

“What is X?” The answer is that X is many things. X is the Xena/XMOS chip, and the Xorro slot that accompanies it. X is the mystery CPU, and above all, X is the AmigaOne X1000, the new complete desktop computer system from A-EON.

It’s almost 25 years since Commodore released the A1000 model that launched the line in the summer of 1985, and with the launch of the X1000 we will usher in a new beginning for the AmigaOS platform. Just as Commodore did with the A1000, we’re aiming at the high-end first, with a powerful desktop computer aimed at the professional and serious hobbyist markets (although you won’t have to wait until summer, and it should be a little cheaper!) The launch of the A1000 offered something new, and the X1000 will do the same. The world has moved on and custom chips no longer make much sense, but the X1000 offers a customizable chip as standard instead — “Xena.”

Thanks to Xena and the Xorro interface, the X1000 offers extraordinary flexibility. We believe that with this easy gateway to the world of “Software Defined Silicon” and a path to massive parallelism, the X1000 will once more make the AmigaOS platform the best choice for truly creative and unique applications. For custom hardware control from robotics to theatrical lighting, for hobbyist creativity, for hardware hacking and for a multitude of applications we haven’t even

imagined yet, the X1000 is a dream platform — and therein lies another meaning of “X”: the unknown. It is you, not us, who will define the future.

Of course that’s far from all there is to the X1000. Even if you have no interest in the co-processor concept, the X1000 is by a large margin the most powerful and up-to-date platform for running AmigaOS. With a fast dual-core CPU and a full range of modern interfaces such as PCIe x16, SATA and USB 2.0, the already extremely responsive AmigaOS will at last have a truly high-end platform to run on. While AmigaOS has progressed massively over the last few years (and continues to develop more and more features at an impressive rate), the hardware to run it on has not kept pace. There was a time when we had great hardware as well as a great Operating System, and with the AmigaOne X1000, we can finally say that time is come again. While the entry level is currently well catered for by ACube’s SAM motherboard, it is this return of AmigaOS to the high-end that truly ushers in a new beginning.

The Nemo designers had a brilliant idea: “Why not add an XMOS chip?” Once, there were custom chips; for the AmigaOne X generation, we have customizable chips. XMOS calls it “Software Defined Silicon.” We call it “Xena,” a nod to the old custom chip names. It’s the inheritor of the “transputer” concept, and it’s something we’re quite excited about.

Capable of eight concurrent real-time threads with shared memory space, at up to 400 MIPS (about 6 68060s worth), Xena gives the X1000 a very

flexible, very expandable co-processor. The uses are endless: control hardware, DSP functions, robotics, display — even SID chip and console emulators. The Amiga has seen some truly ingenious hacks and add-ons. Xena can take this to a whole new level. It will take a while for the full possibilities to be realized, but we urge you to visit XMOS and discover more for yourselves.

To accompany “Xena,” we have “Xorro,” a new slot using an industry-standard PCIe x8 form factor to give access to the “Xena” IO. This will be the route to Xena’s 64 IO lines, which are dynamically configurable as input, output, or bidirectional. “Xorro” will allow bridging Xena to external hardware for control purposes, to internal systems, or to other Xcore processors. This last point is worth more exploration: XCore is a parallel processing architecture, and if you want more power, you can simply chain more XCores together. Reference boards have been made with up to 256 cores, offering a theoretical 102400 MIPS. Those of you interested in high-end imaging or scientific applications, for example, take note.

Alas, some mysteries must remain. We are under strict instructions from the “highers-up” not to reveal the CPU yet. For this, we can only apologize, and give you those details that we can reveal at this moment in time.

The AmigaOne X generation will come with a variety of CPUs, conforming to the Power ISA 2.04 and newer standards. The X1000 processor currently has very limited availability, and you’ve probably

never seen one in the wild, so don't worry too much about it. For now, please be content with knowing that it's a dual-core Power Architecture™ CPU, with a very low Thermal Design Point. For reference, our designers have been running the cores at 1.6GHz during thermal testing, but this isn't the exact nominal clock speed.

...from A-EON
(<http://www.a-eon.com/>)

Thoughts on the X1000

Well, as we jump into an all new year, the world of the Amiga and its relatives continues to lurch forward in new and interesting ways. In the closing months of last year, the long dispute between Amiga Inc. (or whatever they call themselves now, if anything) and OS-maker Hyperion was concluded, with Hyperion effectively the winner, and the new "Amiga" company for all practical purposes. Meanwhile, the MorphOS team released their first version of the operating system to run on Mac (Mini G4) hardware, with further models to follow. While neither of these things are ground-shaking, they both offer steps forward, either directly or potentially, over and above the relative stagnation that has prevailed for several years.

Shortly after the new year, an announcement was made by Hyperion

and a hardware producer calling itself A-EON. Their announcement was called the "AmigaOne X1000," a new Amiga system with title a tribute to the original Amiga A1000 model. The specifications for this system are a little vague of this writing, but a few notables include some form of dual core CPU, the usual set of common computer interfaces (SATA, PCI-e, USB 2) along with a new "Xorro" interface, and a customizable "Xena" chip. Exactly how this all comes together is anyone's guess at this point, as an announcement with nothing concrete to show constitutes vaporware. Still, there's some interesting potential. The customizable Xena chip would seem likely to be some kind of FPGA chip, as seen in the Minimig and similar hardware, which may give the X1000 a capacity for Amiga legacy compatibility not seen before, as it may be able to recreate the classic hardware with its own — or non-Amiga hardware as well. A lot of applications for software-modifiable hardware are possible, given the imagination and ingenuity to use it.

The main issue as I see it is not so much the exact hardware specs as the idea that this is would be the first new serious hardware since the early Amiga One and Pegasos systems which used the PPC G3/G4 processors. There were later new systems supported by AmigaOS and MorphOS, such as the Efika and SAM440, but these were limited "embedded" systems which didn't compare well with their own predecessors, and were ill-suited to

more demanding uses. While this X1000 is not bleeding-edge tech by any stretch, it at least looks like a step or three forward, instead of sideways or backward. It's apparent a future version of Amiga OS will run on this, perhaps Linux too, as that's the usual way of things. Not surprisingly, there have already been inquiries on whether the MorphOS team will port their OS to the new X1000 machine. The response was that they were concentrating on expanding their coverage of PPC Mac hardware. They've already been criticized for that answer, but the truth is they can't write or port software for something which doesn't yet exist aside from a set of in-specific specifications, or even make a well-informed decision on whether they want to or not. While it's certainly nice to have a wide variety of OS choices on a wide variety of hardware, it's not a requirement to have everything on everything else as long as you can find an option that works best for you.

I wish Hyperion and A-EON the best of luck in their endeavors, and I will be watching their progress with great interest, even if I might be more likely to upgrade to a MorphOS-loaded MAC for the time being. Actually I'm doing neither until I'm ready, and the right combination of hardware and software is ready for me to buy.

...by Eric Schwartz
from the AmiTech-Dayton Gazette,
January 2010

February Calendar

February 1 — Amiga-By-The-Loop Chapter
7:00 PM — Main Grand Prairie Library
901 Conover Drive, Grand Prairie

February 1 — MCCC Board of Director's Meeting
Approximately 9:15 PM — Location TBD

February 22 — Newsletter Deadline — 7:00 AM

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