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Amiga's Strengths and Weaknesses

It's been a rough time for me lately, perhaps one of the worst months in recent history. A lot of nasty things have been going on, not the least of which is the recent failure of my Amiga 4000T. I've been kept too busy to properly examine the system yet, but I hope the problem is minor and fixable, given the system's borderline indispensable nature to many of my projects. If the situation persists I may poll the membership for assistance. The only upside here is the hope for an easy fix, and the knowledge that this is far from the worst I've had to deal with over the last few weeks.

I've noted before that I occasionally see people online that dis the Amiga, going so far as to dismiss its ability in its heyday as nothing special. I'll admit to my own bias here, but these detractors almost invariably speak through a 2015 filter, which an Amiga from the late 'eighties or early 'nineties will find hard to compete with to start. If they compared similar systems from the same year, I believe the differences would be a bit more obvious.

I have put some thought into the Amiga's relative strengths and weaknesses, the stuff that helped it stand out from the pack. The first was the Amiga's ease with NTSC and PAL video scan rates, a holdover from the days when home computers were expected to hook up to a TV if a dedicated monitor wasn't available. This, combined with fast full-color graphics made it easy for the Amiga to work in video, from simply recording graphics and animation on a VCR to using genlock hardware to merge Amiga imagery with live video. This power was taken to its extreme with Newtek's Video Toaster hardware / software package, which made it possible to use an Amiga to replace tens of thousands of dollars in video mixing equipment. Amigas and Video Toasters became staples of cable TV studios and tons of amateur and professional video producers, cementing the system as the pioneer in the fledgling field of "desktop video." It remained relevant even beyond the life of Commodore, and wasn't until all-digital video, high-definition, and nonlinear editing became the norm that the Amiga's influence faded. Perhaps if the Amiga wasn't subjected to huge gaps in its development cycle, it might have been able to hold on to the field it helped create. There were options available in the realm of digital video editing and playback, but they didn't keep Amiga afloat. At least the defeat was more due to a paradigm shift than stronger competition.

On the side of shortcomings, one of the Amiga's bigger ones was networking. While it was possible for the Amiga to connect online or form local-area networks with Amigas or other systems, the Windows and Mac systems were generally ahead of the game in this area, with the necessary network ports either built-in or cheaply available early on, with networking support in the operating system following suit. While the Amiga was capable of connecting with other machines, the OS was never really designed with multiple users in mind, so things common to networked OSes, such as restricting access to files or directories to certain users and locking out others, were not available by default, meaning the average Amiga user has "root-level" access over the whole system, which is good for some situations but not all. The Amiga was a slow adopter of a lot of Internet stuff too, especially web-browsing, falling well behind the features of Windows/Mac browsers and the websites that catered to them, though that can be blamed in part on the system's zombie-esque status post-1994.

P.S. After finally getting the chance to look over my Amiga, it is working again, though there are some spots that apparently need a little work. Thankfully it's more of an inconvenience than a smoking death.

…by Eric Schwartz
From the AmiTech Gazette,
October 2015

Quantum Computing in Silicon

October 5, 2015

The significant advance, by a team at the University of New South Wales (UNSW) in Sydney appears today in the international journal Nature.

"What we have is a game changer," said team leader Andrew Dzurak, Scientia Professor and Director of the Australian National Fabrication Facility at UNSW. "We've demonstrated a two-qubit logic gate—the central building block of a quantum computer—and, significantly, done it in silicon. Because we use essentially the same device technology as existing computer chips, we believe it will be much easier to manufacture a full-scale processor chip than for any of the leading designs, which rely on more exotic technologies. This makes the building of a quantum computer much more feasible, since it is based on the same manufacturing technology as today's computer industry," he added.

The advance represents the final physical component needed to realise the promise of super-powerful silicon quantum computers, which harness the science of the very small—the strange behaviour of subatomic particles—to solve computing challenges that are beyond the reach of even today's fastest supercomputers.

In classical computers, data are rendered as binary bits, which are always in one of two states: 0 or 1. However, a quantum bit (or "qubit") can exist in both of these states at once, a condition known as a superposition. A qubit operation exploits this quantum weirdness by allowing many computations to be performed in parallel (a two-qubit system performs the operation on 4 values, a three-qubit system on 8, and so on).

"If quantum computers are to become a reality, the ability to conduct one- and two-qubit calculations are essential," said Dzurak, who jointly led the team in 2012 who demonstrated the first ever silicon qubit, also reported in Nature.

Until now, it had not been possible to make two quantum bits "talk" to each other—and thereby create a logic gate—using silicon. But the UNSW team—working with Professor Kohei M. Itoh of Japan's Keio University—has done just that for the first time.

The result means that all of the physical building blocks for a silicon-based quantum computer have now been successfully constructed, allowing engineers to finally begin the task of designing and building a functioning quantum computer.

A key advantage of the UNSW approach is that they have reconfigured the "transistors" that are used to define the bits in existing silicon chips, and turned them into qubits. "The silicon chip in your smartphone or tablet already has around one billion transistors on it, with each transistor less than 100 billionths of a metre in size," said Dr Menno Veldhorst, a UNSW Research Fellow and the lead author of the Nature paper. "We've morphed those silicon transistors into quantum bits by ensuring that each has only one electron associated with it. We then store the binary code of 0 or 1 on the 'spin' of the electron, which is associated with the electron's tiny magnetic field," he added.

Dzurak noted that that the team had recently "patented a design for a full-scale quantum computer chip that would allow for millions of our qubits, all doing the types of calculations that we've just experimentally demonstrated."

He said that a key next step for the project is to identify the right industry partners to work with to manufacture the full-scale quantum processor chip.

http://phys.org/news/2015-10 crucial-hurdle-quantum.html

November Calendar

November 2 — Amiga-By-The-Loop Chapter
7:00 PM — Main Grand Prairie Library
901 Conover Drive, Grand Prairie

November 2 — Board of Director's Meeting
Approximately 9:00 PM — Location TBD

November 30 — Newsletter Deadline — 8:00 AM