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OPENSARC OR POWER.ORG: WHICH ONE HAS IT RIGHT?

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Last summer, IBM set up Power.org, to promote its PowerPC chip as what it called "open hardware." This year, Sun launched the OpenSPARC.net open source project around the source code for its Niagara microprocessor. But what does "open" mean in the context of hardware? In the case of Power.org, [Juan Antonio Carballo](#) said, "It includes but is not limited to open source, where specifications or source code are freely available and can be modified by a community of users. It could also mean that the hardware details can be viewed, but not modified. And it does not necessarily mean that open hardware, or designs that contain it, are free of charge."

True to that statement, you have to pay to participate meaningfully in Power.org, as well as pay royalties to implement - it's built on a traditional RAND consortium model. To use the Sun code, though, its just download the code under an open source license, and you're good to go to use anything except the SPARC name. All of which leads to the questions: "What does "open" mean in hardware, and which approach will work?"

A few weeks ago I [wrote an entry](#) that touched on this topic, called "That was then and This is Now: SPARC International and OpenSPARC.net," occasioned by the announcement by Sun Microsystems that it had launched a new "open source hardware" initiative called [OpenSPARC.net](#). In that entry, I reminisced about several organizations created almost 20 years ago by IBM, Motorola and Sun, including SPARC International.

A few days later, David Weaver, a long-time (21 years, no less) hardware and software veteran of Sun who has been involved with SPARC International from its inception sent me an email. That message included all manner of interesting information updating (and in some cases) correcting my memory regarding the past history of SPARC International. It also contrasted (as I had in my initial entry) the Sun initiative with IBM's Power.org, which also harks back to an earlier IBM initiative involving the same processor design that has now been opened by IBM. The old organization was called the PowerOpen Consortium, and was a client of mine until it was dissolved.

This entry will pass along David's interesting data, as well as revisit the question of what "open" means when applied to hardware, and whether open standards (the IBM approach) or open source (the Sun route) are likely to best achieve the same basic goal: rallying support for what was once a totally proprietary microprocessor design.

Let's start with the relationship of the old organization (SPARC International), which lives on, to the new initiative (OpenSPARC.net). The following is taken from the updated master [OpenSPARC FAQ](#):

Q: What role does SPARC International play in this?

A: [SPARC International](#) was created in 1989 as an independent, non-profit organization. The Corporation's purpose is to promote the design, development, and application of

SPARC (Scalable Processor ARChitecture) to computer and related products, and to control, maintain, and enforce SPARC trademarks. Sun has open-sourced an implementation of the SPARC architecture; the open-source implementation is independent of the oversight provided by SPARC International. SPARC International continues to provide SPARC compliance test suites to developers who wish to certify and brand their own implementation based on SPARC architectures. To become a SPARC International member, obtain information for compliance test suites, or to get answers to trademark questions contact: karen@sparc.org

According to David, SPARC International also "owns and controls the standard SPARC architecture" as well.

David tells me that my memory was off base when I recalled that Sun had offered to license any SPARC processor designs through SPARC International. As I reported, the new initiative is making a current processor design available on open source terms. David describes this as follows:

Sun contributed the source code (in the Verilog language) to the UltraSPARC T1 ("Niagara") processor, the full new UltraSPARC Architecture 2005 specification, and lots of support tools to the OpenSPARC community. All are laid wide-open for everyone to view, modify, and use as they wish. The source to a previous 32-bit SPARC design, OpenSPARC Ilep, is also openly available. This is all done through OpenSPARC.net.

The processor code and tools are available through the OpenSPARC open source project, of which the OpenSPARC Website is the public face. It will be interesting to see who is attracted to this project, and what they decide to make of the opportunity. David pointed me to this abstract of [A Community Vision for a Shared Experimental Parallel HW/SW Platform](#) from a team at UC Berkeley that would utilize elements of either SPARC or the IBM PowerPC. He says that there is also interest among EDA vendors in using the OpenSPARC code to test their own tools, and/or make their tools available to those using the OpenSPARC Verilog code. Finally, he states that there are "even some commercial companies who are investigating customizing the OpenSPARC design for use in their own products."

Will all of this happen? Given the recent code contribution, it's too early to tell, although David says that the number of downloads of the source code in the first week of availability was "enormous". However, there is a [news page](#) at the OpenSPARC.net site, and presumably when things happen, they'll be promptly posted there, so this would be a good page to monitor if you're curious.

There is another link between the old and the new initiatives, and the OpenSPARC.net project may reflect new interest back on the old in consequence. That link is the SPARC trademark, which remains the property of SPARC International. As a result, while the code and tools that may be accessed through the open source project are free, a license to the trademark would still be needed by anyone wanting to associate the SPARC name with (for example) a commercial implementation of the code.

David also went to some pains to distinguish Sun's open source project approach to the SPARC code from that taken by IBM with respect to its PowerPC architecture, which not long ago was made available through a new membership consortium called the Power.org , which I mentioned in the same blog entry. David points out that access to all OpenSPARC intellectual property (other than the trademark) is free and open to all, while most of the meaningful benefits of being associated with Power.org are available only to categories of members that pay from \$10,000 to \$100,000 annually, depending on the level of participation and control they elect to buy in for.

Those rights would include the right to influence the future development of the PowerPC architecture, but actually implementing a PowerPC design would incur a royalty obligation. Given that Sun has pledged at the OpenSPARC.net Website that the SPARC code will be available under an open source license that meets the standards of OSI (the Open Source Institute, which is recognized as the arbiter of what does, and does not, make the grade as an "open source" license), presumably anyone wishing to fab a chip based on the SPARC code could do so without owing Sun anything, so long as they private-labeled the result.

It will be interesting to see how both the SPARC and the PowerPC initiatives fare in the marketplace (the News page for Power.org, by the way, is [here](#)). Each is an experiment in dealing with intellectual property rights (IPR) in new ways, as well as in sharing historically proprietary value in new areas besides software in hopes of reaping rewards from doing so. If the IPR is perceived as valuable and the proposition is right, both sides will win.

On the other hand, if the IPR is seen as valuable but the model is flawed, then the effort will languish. Having two different models and designs that are in the same nominal category (microprocessor designs) and that have been launched in the same relative time frame provides quite an intriguing opportunity to let the marketplace decide which approach it likes best.

Of course, all things are never equal, and this situation is no exception. But I'll check in from time to time to both sites to see what wins are announced in the future and report on what lessons may be worth drawing as the future unfolds.

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