Can't I Just Hide My Invention in My Chip?

This Patent Stuff and My Semiconductor Business – Part 31

Welcome to this post about patents and chips. Not a lot has been written about this combination, but there is a lot to know, especially for the innovators and entrepreneurs themselves. In this three-weekly series, I talk about various aspects, from a dual perspective of a patent agent and a semiconductor entrepreneur. If you like the article and read it on LinkedIn, give it a thumbs up, and/or click on Follow. If you like to work with us for your next patent, "contact us" info is on www.icswpatent.com. You can also subscribe/unsubscribe for short email alerts when the next post is available.

Can you invent some nifty design trick, then build it, and hope that your competitors don't figure it out by reverse engineering it? I sometimes wonder. Marketing folks regularly have great difficulty to get people to notice the beautiful stuff they have to offer. If people hardly look at the material you publish, would they go through the trouble to put your chip under a microscope and analyze your design? (OK, I know, contrary to the marketing guys, IT folks often have great difficulty to prevent people noticing the beautiful stuff their firm has to offer...)

As a patent agent, I continually work with inventors to get their inventions well described and explained, to be able to file a patent that will be strong. And I can assure you, there are many inventors who have great difficulty explaining their inventions. It can take a lot of analysis, studying, and communication to find out how and why an invention works. Particularly semiconductor designs. You may have seen something similar for software. From reading software source code, even with embedded comments to "document" what is going on, it can be hard to understand what's *really* going on. Now imagine yourself not having the source code, but only the compiled result. Or in case of a chip design, just a netlist and a layout. Urrggh! Pure copying may be relatively easy, but understanding a design to make it work optimally, especially an invention that has never been published, can be really tough.

The problem is of course, netlists are easy to obtain, and die photographs too. In countries with low-cost labor but lots of highly educated engineers, reverse engineering may be easier to do than in the United States. Somebody who is dead set on learning your technology and who is capable in the field may find out enough to be dangerous. Even if you have registered your layout under the 1984 Semiconductor Chip Protection Act, he may get to understand enough to be able to copy a critical part of the design, re-layout it, and get it kind of working. Never mind that he doesn't know how you test it, or how you calibrate it. He may not care.

There are more ways your invention, that you keep as a trade secret, may leak out. Some of those ways may be legal, and others may not. Given the international nature of our business, you cannot always take action if you suspect that somebody has illegally copied your design. In some cases, you may not even know that somebody has copied it. In other

cases, you know it was copied because the competing product is eating away your market share, but you may have no idea who is behind it. In yet other cases, you know exactly who it is, but you can't prove that they have obtained the technology by any other means than reverse engineering, which could be fully legal.

If you are active in some Asian markets, not to mention your home market, you need to assess the risk that somebody would want to copy your chip, or your technology, and what that would mean for your revenues. If the result would be painful, you should seriously consider patenting the design.

A patent can have other benefits than legal protection of your IP. Consider this: inventors seldom take the time to understandably document their inventions. If you want your team to be able to use the invention after the inventor has left the company, it needs to be properly and understandably documented. Where do you get that? Usually not in a scientific publication—those are often written to give a hint about an invention, without giving away too many details. But in the patent, the invention must be fully and understandably documented. If not, the protection can suffer. Thus, spending the money to write the patent application has the side benefit of getting excellent documentation (subject to the personality and capabilities of the patent practitioner).

Also, you can now freely publish your invention, and use it in seminars, exhibitions, advertisements, and any other place that allows you to build credibility. Your sales can benefit from your bragging rights.

And it is not just sales of your product. Many semiconductor companies have some amount of venture capital funding, or at least risk capital funding. Those who provided the risk capital want to see it back, multiplied. A patent portfolio that covers your core technology can greatly help in an M&A situation.

In conclusion—yes, you could hide your invention in your chip. But patenting it might be a wiser option for multiple reasons.

Upcoming:

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