



How to Choose an ASIC Supplier

So you have done the analysis and have concluded that you should develop a new ASIC or SoC. If you have done one successfully and your current supplier(s) is (are) doing a great job, you are probably not reading this article and you know what to do.

But assuming that you are new to ASICs or do not have a relationship with a supplier for your current needs, there are some points to consider.

ASIC suppliers come in all shapes and sizes. There are large suppliers that do lots of chips per year, typically digital ASICs, possibly with minimal amounts of analog, that are focused on automating the development process. Customers supply netlists of simulated logic and specs for the required IP blocks; then these ASIC houses are good at quickly performing the physical design, test development and delivering protos and production units. They typically work with the major foundries and generally do a very good job.

The problem with these types of companies is that they offer very little design engineering help and are not very good at complex analog or mixed-signal ASICs. If they take on this business, they will likely outsource design and layout of the hard-to-design circuitry. This generally results in an unsatisfactory technical outcome.

For those customers with complex analog and mixed-signal requirements, it is imperative to find a supplier that has the necessary technical prowess to implement your requirements into an ASIC or SOC. This is the starting point of your search. However, you must also figure the end game into your search as well. This involves the following considerations: 1) project type, 2) project timeline, 3) production quantities and unit price targets, and 4) quality requirements.

Project type means that your project is focused either on technology development project or on getting into production. If focused on technology development or basic research, you should seek out companies that specialize in design but you do not need to be concerned with the production side. There are many small design houses who do well for these types of projects, but have little capability to deliver production units. They will often team with a supply chain company like MOSIS or EquipIC to handle the foundry relationships and prototyping.

However, if your project will ramp into production, you should search for an ASIC supplier with not only strong engineering capability in your required field but one that can also supply production units at an attractive unit price with your required quality level. Beware of ASIC companies who want to wash their hands after development and turn over your project to a production company. In many instances, you never will get into production.

It is important to find a company that can convince you in the proposal phase that they can solve your design problems and can deliver high quality production units at the price that is suitable.

At Linear MicroSystems, we are a full turnkey ASIC company that has a strong expertise in all facets of design and process technology but also has many years of experience delivering high volume production. We are focused on getting your product developed quickly to enable both of us to mutually reap the rewards of volume production.