

Lotus Microsystems

Client case

With HØIBERG, Lotus Microsystems ensures a strong IP position within one of the world's most competitive industries.

"We are an IP-based company. Whenever we find a new idea, we begin by discussing it with HØIBERG. Patents, trademarks, and trade secrets all influence the way we design our products and their commercial potential," says Ahmed Ammar, co-founder & head of product at Lotus Microsystems.

"Our main challenge when transitioning from the research environment at the Technical University of Denmark (DTU) to a commercial company has been shifting our mindset from technology-driven as researchers, to market-driven. Now, rather than designing a Ferrari for a farmer, we need to target exactly what the market wants," the founder elaborates.

From researchers to business professionals in the global microchip industry

The three founders of Lotus Microsystems met at the Electrical Engineering department at DTU in 2015. Five years and three PhDs later, they founded Lotus Microsystems in 2020.

Lotus Microsystems has developed a novel technology for producing highly integrated power converters based on a silicon interposer. The technology enables the development of smaller power converters with higher efficiency, better thermal performance, and lower package parasitics.

"It is our ambition to bring our technology to market by offering novel solutions to leading original equipment manufacturers," Ahmed Ammar explains.

Patents are essential to become a market contender

Lotus Microsystems plans to ship 50–100 million power modules before 2027. In early 2023, the company was close to releasing two products onto the market. A third product is in the later stages of the pipeline.

"As a new contender in the global semiconductor industry, ensuring our strong stance with respect to IP is key for success. Since we are based on a fabless manufacturing model, IP is a core company asset that provides protection from the fierce competition dominated by big players in the field." Ahmed Ammar says.

HØIBERG's freedom-to-operate analyses reduce the risk of future litigation

Before bringing their products to market or entering partnerships, Lotus Microsystems had to ensure that none of their product features infringe another company's patent.



Ahmed Ammar

Co-founder
Lotus Microsystems

"HØIBERG is always on top of their game"

Lotus Microsystems chose to work with HØIBERG based on their many years of collaboration when building their portfolio at DTU. When asked what he values the most about working with HØIBERG, Ahmed Ammar points to two things: punctuality and flexibility.

"HØIBERG is extremely punctual. The patenting process takes years and involves many different stages. HØIBERG is always on top of their game throughout the entire process," he explains.

"HØIBERG is extremely straightforward to work with and defines their services in a flexible way that suits our needs. They understand the stage of maturity of our start-up company. It's been a fruitful collaboration thus far," Ahmed Ammar states.

"HØIBERG has carried out several freedom-to-operate analyses for us. A very thorough and accurate analysis is imperative for us to avoid putting our company at risk. It goes without saying that the quality of such an analysis depends on the patent attorney's skills and experience, both legally, technically and industry-wise. In this regard, HØIBERG is in a league of its own," he states.

HØIBERG has the competencies to create strong patents

Frontier research in the highly complex area of power converters requires technically skilled patent consultants, who are constantly up to speed with industry developments.

"We need a broad scope of protection to have strong patents that safeguard our ideas and products worldwide. HØIBERG has the competencies to create impactful, secure patents, which in turn reduces the overall patent costs in the long run. They're good at finding that balance."

The world's smallest power converter with superior thermal performance

Through extensive research, the team at Lotus Microsystems has developed a novel technology for producing highly integrated power converters based on a silicon interposer.

This results in unprecedented miniaturisation capabilities that are important for the development of future cell phones, laptops, and medical devices where UX and technical development requirements dictate size reduction, increased battery life and adding new features. The same technology enables the development of power converters with superior thermal performance, which is a main requirement for applications with harsh environments and stricter standards.

"HØIBERG has a very high level of technical expertise as many of them hold a PhD. They understand the technical side of our inventions and are proficient at combining this understanding with their legal expertise and deep insight into the global semiconductor industry"

A robust IP portfolio has been the key to obtaining significant investments

"HØIBERG's technical and commercial understanding has been essential in ensuring the high quality of our IP portfolio and our valuation. HØIBERG understands our business strategy and can advise us on how to structure our IP so it leads us in the desired direction, and which consequences that decision will have for the development of our business," he states.

"Our ability to attract investors depends on the quality and value of our patents, both technically and commercially. The common practice of due diligence conducted by a potential investor includes running checks on our IP. Our IP portfolio has been a key factor in the valuation of the company and the significant investments we have been granted. So far, we've had a very fruitful outcome from working with HØIBERG," Ahmed Ammar concludes.