

Xsight Labs Uses Deep Data Monitoring by proteanTecs to Advance Predictive Maintenance in Data Centers

For fabless semiconductor company [Xsight Labs](#), achieving high visibility during chip production and use is key to maintaining quality and earning customers' confidence. "Our chip is very complex and operates in mission-critical environments," says Ran Schrift, Director of Operations at Xsight Labs. "We needed an innovative way to better understand what is going on inside our chip—for example, what is influencing our manufacturability, frequency response, and power."

To gain the insights that it needs, Xsight Labs works with [proteanTecs](#) to integrate [Universal Chip Telemetry](#) (UCT)—which provides on-chip monitoring based on agents that are built for analytics—within its SoC. UCT agents provide high coverage of vital parameters at every stage and operate in both test and mission modes. Xsight Labs then uses proteanTecs's software platform [Proteus™](#), which applies machine learning algorithms and fusion to data uploaded from the on-chip UCT agents.

Using Proteus, Xsight Labs and its customers can access advanced analytics for health and performance monitoring throughout the product life cycle—from production to the field. "proteanTecs offers the best solution to give us the in-depth information we need," says Ran. In addition, Xsight Labs works closely with proteanTecs and leading automatic test equipment (ATE) vendors to develop methods of reading the UCT agents and providing on-the-fly data analysis during production test runs.



Company: **Xsight Labs**
Industry: **Technology**
Country: **Israel**
Employees: **190**
Website: **xsightlabs.com**

About Xsight Labs

Founded in 2017, Xsight Labs is a fabless semiconductor company that delivers a broad portfolio of products for complete connectivity. The company is headquartered in Kiryat Gat, Israel, and has additional offices throughout Israel and the United States.

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Ran Schrift
Director of Operations, Xsight Labs

Using Data to Develop a High-Quality, High-Yield Chip

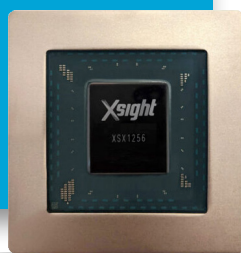
Founded in 2017 and headquartered in Israel, Xsight Labs delivers a portfolio of products that enables end-to-end connectivity for cloud infrastructure. Its first product to go to market is the [X1 data switch](#)—a low-power data center switch that delivers application-optimized switching for top-of-rack and data center fabric, as well as high-performance computing, artificial intelligence, and machine learning clusters. “As part of our vision, we intend to cover the whole gamut of connectivity solutions within cloud infrastructure,” says Rajagopal Krishnaswamy, Vice President of Marketing and Business Development at Xsight Labs.

Early in the product development process, Xsight Labs began using proteanTecs to build out its solution flow, optimize its chip design for high-volume production, and embed agents into the design for optimal post-silicon coverage.



Benefits

- Designed and developed a high-quality, high-yield SoC
- Gained visibility into chip performance
- Improved switch reliability
- Maximized return on investment
- Reduced time to market
- Gained the ability to detect latent failures during production
- Laid the groundwork for large-scale production
- Facilitates predictive analysis and predictive maintenance by customers



Because the X1 data center switches are high-end silicon products built on leading-edge technology nodes and require billions of transistors, developing them involved significant logistical complexity and early-stage planning. “proteanTecs brought the relevant technology for us to get early read points on the behavior of silicon and collect data points to help drive high quality, performance, and at-scale manufacturability,” says Rajagopal. “Using these capabilities, our customers will eventually be able to monitor the switch during system operation for predictive analysis on its health and performance.”

Improving System Reliability Using Insights from UCT-Driven Analytics

During the design phase of the chip, the engineers at Xsight Labs used the proteanTecs suite of automated integration tools to identify the ideal mix and placement of the UCT agents on the chip to provide accurate information during production without adding time to the manufacturing process or impacting power, performance, and area. By doing so, Xsight Labs was able to achieve the best return on investment.

During development and testing, Xsight Labs used Proteus to gather information on the product's performance, which the company uses to detect and resolve latent defects during production.

"Collecting this information on the tester gives us remarkable visibility into what causes units to pass or fail, as well as ways to improve everything, including the silicon, the package, the tester, the hardware, and the test program itself," says Ran. Xsight Labs can also use Proteus to predict which chips are most likely to have reliability problems down the road—and avoid shipping those chips to customers.

Having the right data at an early stage of development has helped Xsight Labs **stay agile** and **make critical decisions faster**. **By incorporating data at every phase of development, the company is on track to achieving a shorter time to market.** Eventually, the chip will be used in mission-critical data center networks at hyperscale enterprises: large cloud organizations that deploy anywhere from 100,000 to one million servers annually. "Because preventing downtime is so critical for these customers, being able to get predictive data on mission-critical switches that are deployed in their networks and perform predictive maintenance of equipment is essential," says Rajagopal. "Using proteanTecs, we are prepared to meet these requirements at scale."

“Using these capabilities, our customers will eventually be able to monitor the switch during system operation

Rajagopal Krishnaswamy
VP of Marketing & Business
Development, Xsight Labs



Working toward Large-Scale Production and Continual Efficiency Gains

Now that Xsight Labs has implemented the deep data monitoring solution it needs to achieve visibility and innovation throughout the product development life cycle, the company plans to begin scaling up its manufacturing and delivery processes. "As we enter the next phase, we have high hopes that we will see significant value from the preliminary work we performed alongside proteanTecs," says Ran.



Interested in learning how you too can achieve high quality at scale and faster time to market?

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