

# Global Semiconductor Company Scales IT to Match Growth Demands



APEX Flex on Demand enables Silicon Labs to rapidly scale IT infrastructure capacity to meet burst and peak demands without upfront cost and overprovisioning.

## Business needs

- Manage unexpected spikes in capacity demand
- Protect investments in external manufacturing
- Balance capacity demand with budget conformity
- Help design engineers work as efficiently as possible

## Business results

- Absorbed unplanned spikes in demand with ease
- Avoided costly delays and bottlenecks during peak demand
- Simplified annual capacity planning and remained on budget
- Afforded engineers greater control over compute resources
- Avoided creating unnecessary e-waste

Customer Profile



“We have a fairly robust set of needs for our on-premises HPC farm. We selected APEX Flex on Demand because the pricing structure outperforms traditional CapEx as well as cloud solutions.”

**Jud Barron**  
Silicon Labs, R&D  
Infrastructure Architect

## Solutions at a glance

- APEX Flex on Demand with Dell PowerEdge Servers
- Dell Financial Services
- Dell ProDeploy and ProSupport

## Building a Secure, Connected World

Silicon Labs is a fabless semiconductor company based in Austin, TX. Their products help customers develop connected devices to solve global development challenges in energy efficiency, economic growth, healthcare, sustainable cities, and responsible production. The business is focused on building connected and secure edge solutions. By providing its customers with the technology to develop modern, wirelessly connected, low-latency products, Silicon Labs is enabling smarter homes, cities, and industries.

Silicon Labs technology is being put to work across a host of innovative use cases. That includes optimizing domestic energy consumption, enhancing home security, reducing waste through industrial automation, revolutionizing vehicle theft recovery, enabling always-on retail experiences — even using telemetry to track and maintain the health of honeybees.

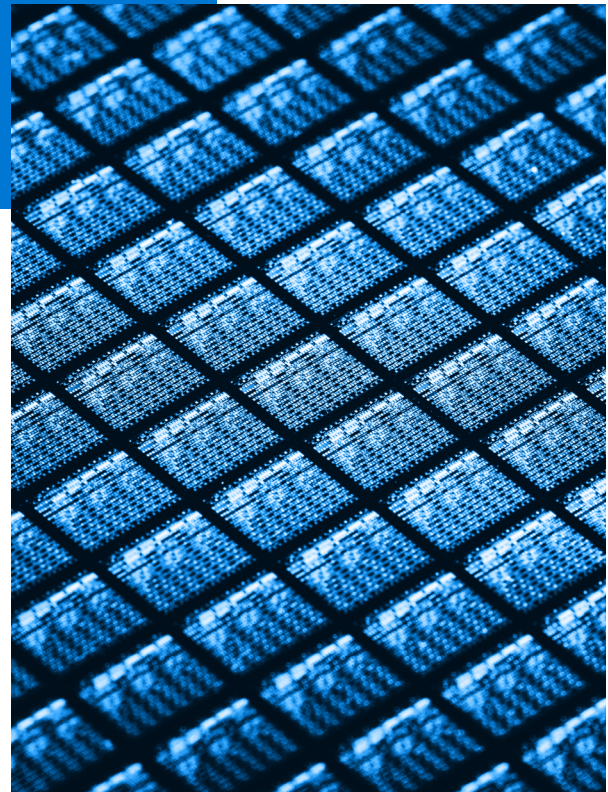
With surging demand for the technologies that Silicon Labs creates, the business worked with Dell Technologies to overcome key strategic challenges around cost and infrastructure while maximizing productivity.

## Unplanned Delays and Unexpected Costs

A critical stage in Silicon Labs' product development cycle is a process known as "tape-out." This is when a photomask design is compiled and sent to an external foundry. To ensure manufacturing runs smoothly, Silicon Labs reserves time slots in the foundry's production schedule in advance. However, if more than one tape out happens at the same time, or delays occur, the company can lose its place in the queue — as well as the investment made to secure it.

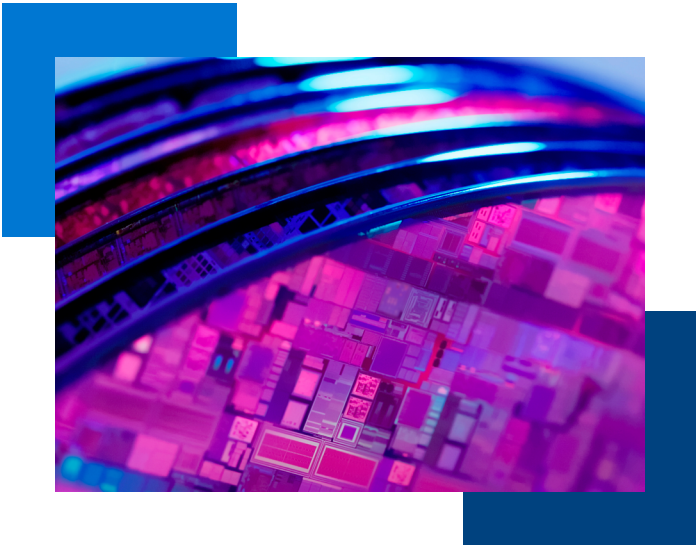
Tape-outs can last several weeks and place immense demand on Silicon Labs' HPC farm. This had historically made annual capacity planning difficult. As a result, common practice had been to project and over provision IT capacity to absorb spikes in demand during tape outs. This ultimately meant that outside of tape-out periods, Silicon Labs was only using 80% of the capacity it had paid for.

It soon became clear that the ability to rapidly scale compute capacity during tape-outs would be key to ensuring budget conformation and operational efficiency in the long run. Silicon Labs also wanted to improve how it managed workloads across



**“We like the idea of these servers not being fixed capital assets that we depreciate and then eventually e-waste. We can send them back to Dell and have new ones arrive that give us the latest and greatest.”**

**Jud Barron**  
**Silicon Labs, R&D**  
**Infrastructure Architect**



its server farm, like scheduling jobs based on available resources while remaining within committed capacity levels. These requirements are what eventually led the company to choose Dell Technologies and APEX Flex on Demand.

## Elastic Compute Resources Whenever Needed

APEX Flex on Demand provides on-premises hardware and burstable capacity to respond quickly to dynamic fluctuations in workloads while avoiding overprovisioning and gaining control over costs. Silicon Labs is now able to pay only for the capacity it uses, with immediate access to elastic resources when required.

Silicon Labs worked closely with Dell Technologies to put together an APEX Flex on Demand computing solution and contract to match business requirements. Soon after, PowerEdge servers were deployed on-site in a matter of hours. Dell PowerEdge servers now provide an agreed base capacity limit, with access to burstable resources to absorb spikes in demand during tape-outs and other periods of peak usage.

## APEX outperforms CapEx and Cloud Alternatives

Prior to working with Dell Technologies, Silicon Labs purchased every piece of hardware used in its HPC farm. This

resulted in outdated equipment continuing to operate beyond its lifecycle, leading to both performance degradation and asset depreciation. When hardware began to show its age, it would need to be replaced and ultimately end up as e-waste. This was something Silicon Labs wanted to avoid, which made APEX Flex On Demand's built-in refresh cycles very appealing. When the initial APEX contract ends, Silicon Labs can continue on a monthly basis of simply return its equipment to Dell Technologies, with the option to sign a new agreement featuring the most up-to-date server models available at the time.

APEX Flex on Demand's pricing structure also outperformed cloud alternatives, providing the same flexibility and scalability without the expense. Unlike the cloud, there was no need to reconfigure tools that the Silicon Labs design team had used for years. This allowed the engineering workflow to remain untouched, save for the fact that the team now has access to extra capacity whenever it's needed.

## Simplicity. Agility. Control.

Silicon Labs now has the agility to access extra capacity wherever and whenever it is required, without waiting weeks or months for new equipment to be deployed. Control over exactly when additional capacity is used, and how much it will cost, has also made budget conformance easier than ever before.



**“Apex Flex on Demand gives us the flexibility to run jobs when we need them and where we need them.”**

**Jud Barron**  
**Silicon Labs, R&D**  
**Infrastructure Architect**

APEX Flex on Demand has proven to be invaluable to Silicon Labs, helping the business absorb five tape-outs in a single month, avoid bottlenecks and stay on schedule. Silicon Labs is now working on fine-tuning its reporting practices with the end goal of automating the activation of burst nodes for maximum efficiency. If more capacity beyond the agreed commit rate is ever needed in the future, it's as simple as picking up the phone and requesting it.

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