

# Storage Chipmaker Saves Months of Time-to-Market With HTOL Visibility

Learn how the leading fabless chipmaker leveraged proteanTecs analytics to accelerate High-Temperature-Operating-Life (HTOL) testing and slash production test costs



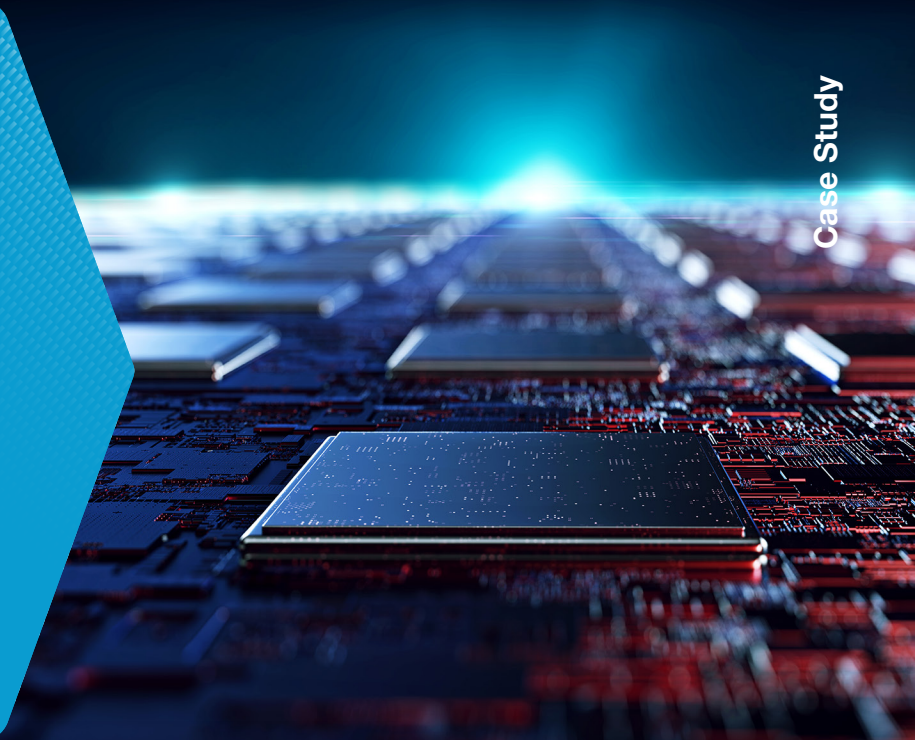
**SAVED**  
**> 2 MONTHS**  
Redundant HTOL time during qualification testing



**SAVED**  
**> \$250K**  
Costs of skew lots and troubleshooting resources in future projects



**ENHANCED LIABILITY**  
The chipmaker was able to meet reliability commitments



## The Customer

**A fabless chipmaker making 7nm storage devices**

The customer employed HTOL to test chip reliability at a Tjunction of 125°C (257°F) and high voltage.

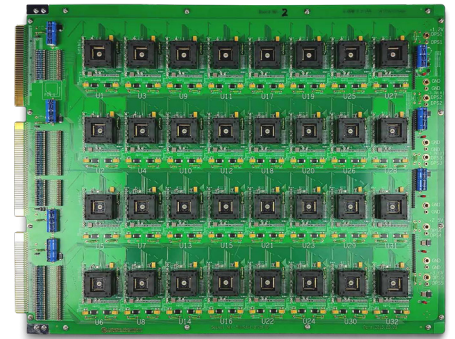
These stress tests accelerate aging to ensure the chips meet their specified lifespan.



## The Challenge

**Weeks of delay in product launches due to lengthy HTOL iterations**

HTOL tests take an average 42 days in the oven and issues are detected very late in the process. Lack of in-situ visibility during reliability testing may cause significant delays and spread uncertainty. The customer's reliability engineers can only see the end result of each iteration, without knowing how the chips degrade over time when running in the oven.



HTOL Burn-in Board (BIB)



Abnormal downward spikes during HTOL in purple and green



## The Solution

**In-situ HTOL degradation monitoring with a deep data analytics tool**

The customer embedded proteanTecs on-chip monitoring solution to quantify degradation during HTOL. Using ML-driven cloud analytics, the customer got live test results at 13-minute intervals, providing unprecedented granularity. The analysis immediately indicated that some chips had abnormal measurements due to voltage spikes.

A closer look revealed the cause: these chips ran at 850 [mV] instead of 900 [mV] due to IR drops on the burn-in board (BIB). The analytics platform enabled a quick fix after pinpointing the problem to a specific BIB circuitry.



The platform showed higher degradation on the bottom three rows of the BIB



## The Results

**Faster Time-to-Market:** Within just 48 hours, HTOL testing got back on track thanks to the proteanTecs deep data analytics output. It has helped bring the product to market faster by saving the customer an estimated **68 days** of wrong HTOL testing.

**Substantial Cost Saving:** The solution resulted in direct savings of over **\$250,000** in terms of tester time and engineering resources. It has also indirectly saved **millions of dollars** by preventing product launch delays.

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