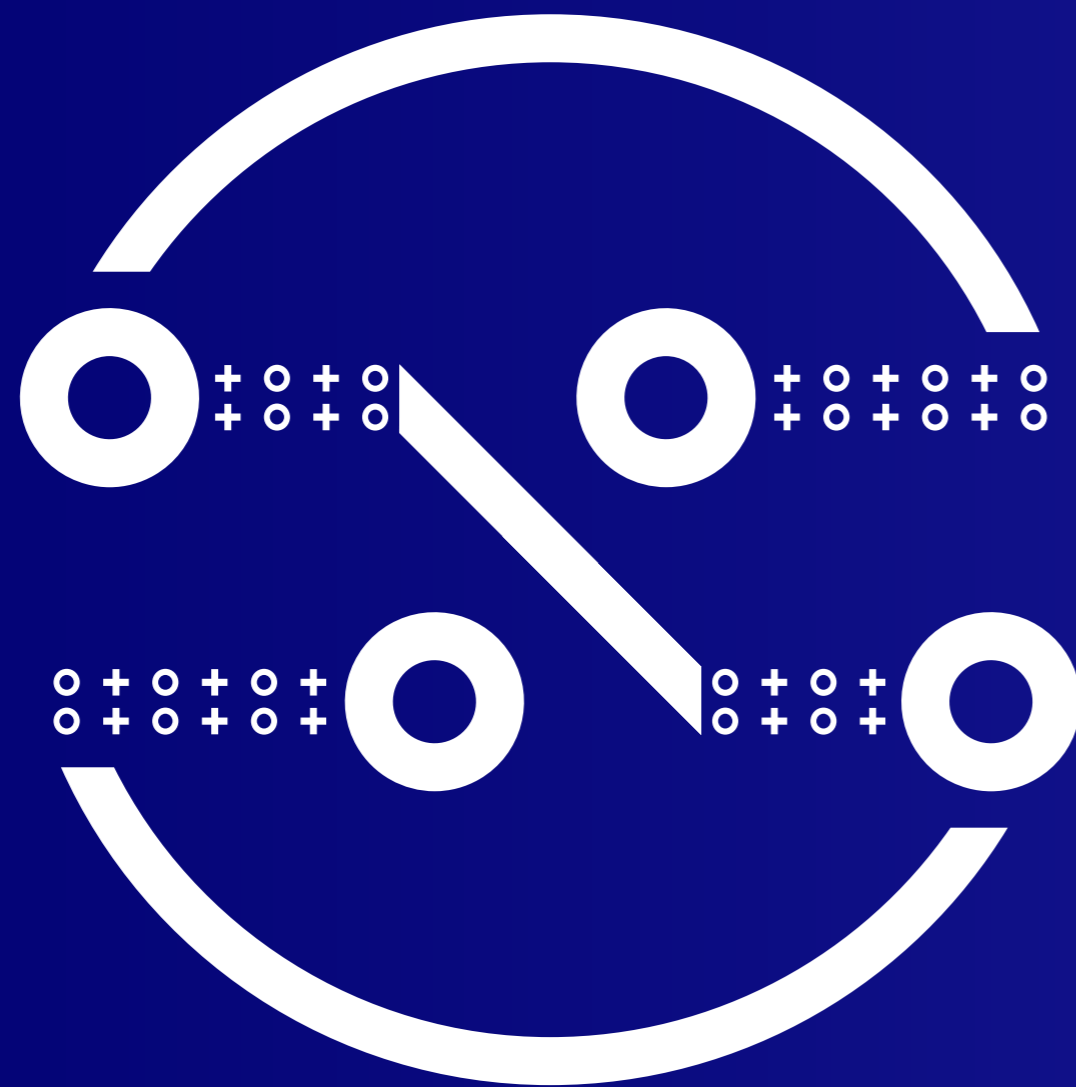


Semiconductor Escape Prevention

Solution overview

The OptimalPlus Escape Prevention solution is designed to deterministically address test process and operational issues that impact quality and could lead to test escapes. It works with Global Ops to support both online and offline decision-making and complements our Outlier Detection solution, which uses a statistical approach to screen for bad parts. Escape Prevention can be easily integrated into any manufacturing environment and configured to drive automatic bin switching of potential test escapes.



Solution highlights

- Increases quality and reliability by killing questionable dice during test.
- Uses a library of specific algorithms to detect equipment, test program and operational issues.
- Supports automatic bin switching to ensure that bad parts don't get shipped.
- Manages the publication of validated "escape" rules to test floors across distributed and outsourced manufacturing operations.

* Requires Global Ops

Escape prevention, quality retention

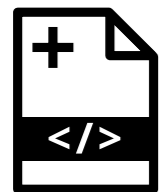
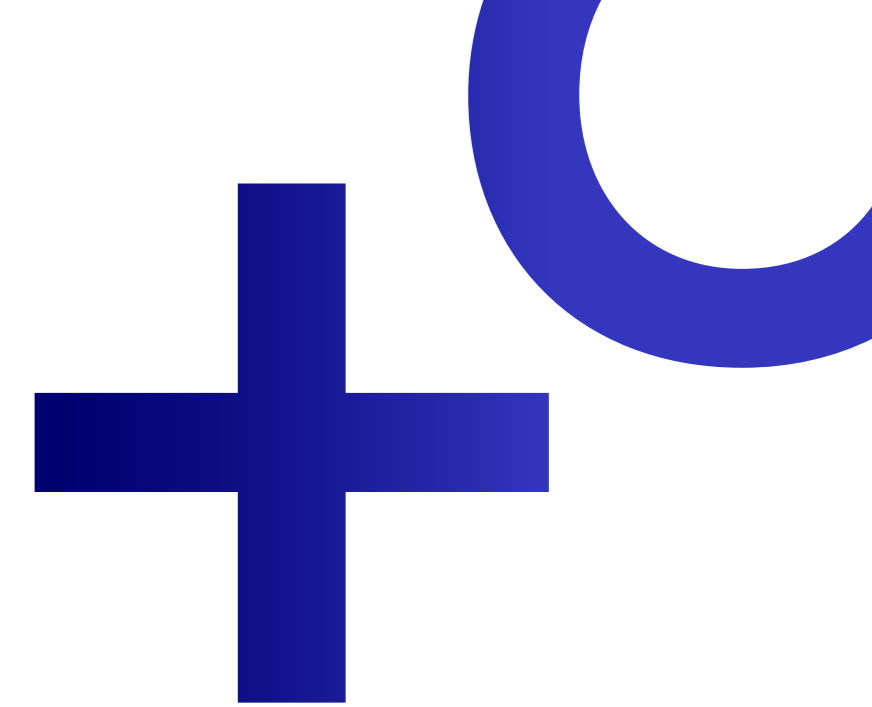
Issues in test operations, test programs and test equipment are often not caught by standard screening practices. Based on hundreds of post-mortem data analyses conducted on units returned by customers, OptimalPlus designed and developed the Escape Prevention solution — a collection of rules and algorithms that execute on testers and test floors in real-time to prevent bad parts from shipping.

For the first time, passing devices in a timely manner before shipping to further increase product quality. OptimalPlus Escape Prevention drives up quality assurance efforts on the manufacturing operations floor, significantly improving the delivery of quality products to market.

The Escape Prevention rule library finds issues like:

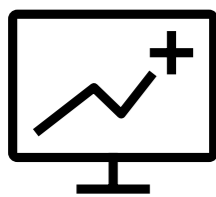
- Over-probing of dice on a wafer
- Tester “freeze”, i.e., a series of parts have matching test results
- Passing parts that fail critical tests
- Changes to test programs during execution
- Too-few tests executed on good parts
- Incorrect tester settings and tester software versions

How it works



Create rules

Users configure rules based on predesigned templates tuned to look for known causes of test escapes.



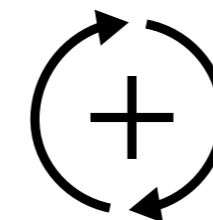
Simulate scenarios

Simulation is performed using the newly-created rule leveraging historical test data (saved and stored by OptimalPlus) to verify that the targeted excursion was successfully prevented.



Publish to supply chain

Once a rule is approved, it can be propagated to the entire tester fleet so that bad devices are binned-out in real time.



Continual monitoring and validation

As future devices are tested, engineering teams can track bad bin failures based on the published Escape Prevention rules to confirm that suspect devices are prevented from entering the supply chain.