TIGNIS
A Cohu Analytics Solution

Focus on Excellence:
Semiconductor Fabrication

# AI Process Control Platform Enabling Next Generation Technology

## Applying AI Models to Detect, Analyze, Predict and Alert

PAICe Monitor® delivers AI and machine learning-enabled analytics for all stages of the semiconductor fabrication process lifecycle - from process development and ramp readiness, to high volume production.

Leveraging Tignis' Digital Twin Query Language®, PAICe Monitor enables process engineers to transform in-product fault diagnoses into continuous real-time monitoring—greatly improving time to diagnose, alerting to problems and predicting future faults.

### Demand More from Your Process Control

Tignis PAICe Monitor enables you to easily harness the power of AI and physics-driven computational modeling throughout your fabrication process by:

- Autonomously identifying root causes of critical yield issues using the latest in AI and machine learning techniques.
- Identifying multivariate and non-linear relationships between process variables and critical wafer measurements.
- Instantly deploying analysis to real-time monitoring to prevent future yield issues.

### The Result?

Tignis enables your process engineers and equipment technicians to troubleshoot and resolve nonstandard events in the production line, improve processes, and review technological health and stability. With Tignis, you can improve fabrication productivity and achieve your goals—whether high yield in high volume production, faster cycle time, or cost savings.

PAICe
MONITOR®

### AT-A-GLANCE:

PAICe Monitor takes in all the process related data that you are collecting today: equipment trace data, metrology data, equipment maintenance data, lot data, and more. The Tignis AI Advisor automatically uncovers complex interactions between measured process variables and selected target variables.

With the power of machine learning, PAICe Monitor actively learns the nuances of your equipment, configurations and processes in order to autonomously detect process variations that lead to catastrophic deviation in product quality for your manufacturing run or batch.

***"Rather than just telling us there's a problem, Tignis' software tells us why there's a problem and what to do about it."***

***— Fred Woo, PE, Manager of Engineering***

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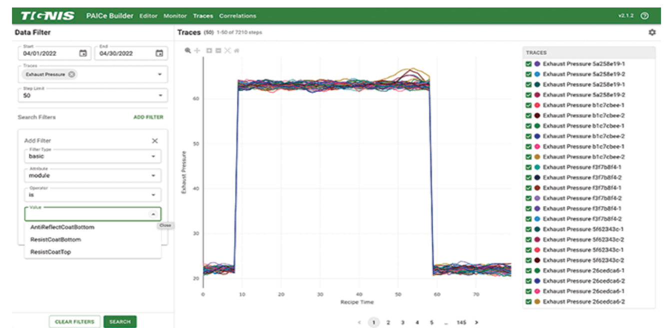
PAICe MONITOR

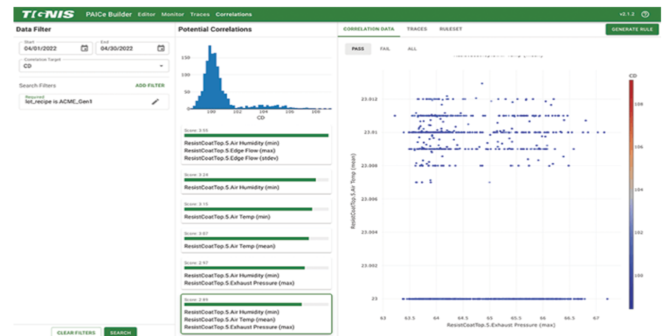
## PAICe Monitor in Action

Fabrication yield manager, Mike Smith, discovers there has been a decrease in average CD over the prior shift. In the past, identifying the root cause of an issue like this would take days or even weeks. However, Mike recently installed PAICe Monitor in his fabrication process equipment.

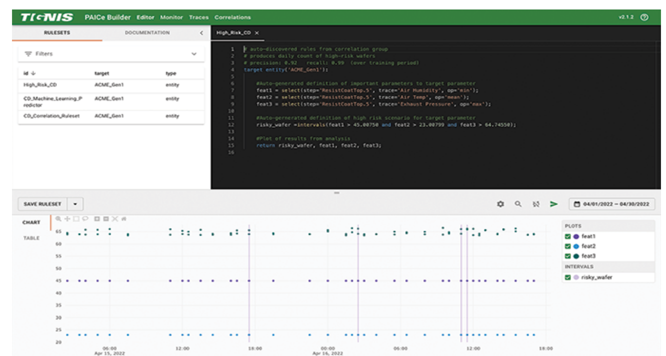
Using AI and the latest in machine learning-enabled analytics, PAICe Monitor immediately pulls data from relevant process steps including deposition, etch, and metrology equipment. Mike is able to search for and quickly identify the most likely causes of CD issues in the batch of wafers.




PAICe Monitor identifies many of the correlations that Mike expects. But one catches his eye: a 3-variate correlation that has identified process variables from both etch and deposition. While all three parameters are within acceptable ranges, the analysis has identified a zone that causes an increase in CD variance.




Mike quickly modifies the process to avoid the zone, effectively eliminating the increase in CD variance over the past shift. He is able to remedy the issue in hours rather than days, and save a huge amount of money for his fab. Mike also deployed PAICe Monitor's auto-generated analytics, enabling him to preemptively identify future yield issues.




**See what Tignis can do for your business.**

For more information on applying analytics to your 24/7 monitoring data,

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