Yieldwerx SPC Module Case Studies

Company Background

A silicon-valley mid-size fabless semiconductor company develops and markets proprietary, analog and mixed-signal semiconductors. Its products are used in LCD monitors, TVs, computing, data communications, and a wide variety of consumer, automotive and industrial products. The company outsources wafer manufacturing as well as IC assembly and sells its products worldwide through direct sales and distributors.

Problem

The company performs final tests on millions of IC chips daily, with an annual growth rate of 20-40%. Statistical Process Control [SPC] and monitoring with automatic trend-detection on the final test data has been a major Quality Management need. Especially, as the business grows into high-end markets, such as Automotive and Industrial, the company quality management considers it is imperative to have SPC level operational-insights to achieve the needed quality-control goals.

Solution: Yieldwerx SPC Module

In Q3 2015 the company deployed the **yieldWerx** SPC module, extending their existing YieldWerx Enterprise installation, at their production (Final Test) sites. The SPC module automatically monitors process consistency across, lots, wafers machines, testers. Real-time SPC allows the company to monitor consistency through every stage of their production cycle.

Since the deployment of the SPC Module, the company has achieved early detection and warning of bad lots prior to shipment. The company is currently processing several million dies per day, generating in excess of 6-7GB of data. This data is automatically loaded by **yieldWerx** in real-time, and analyzed to detect excursions and alert stakeholders. By streamlining the process control and reporting, the company has been able to lower defect rates and reduce machine stoppages.

Value: Quality and Operational Insights and Improvement

The **yieldWerx** SPC Module monitors and contextually adjusts the control limits of test parameters making it more responsive and automated, based on predefined rules. The company has implemented customized SPC rules, control limits, and alert mechanisms, apart from the standards provided by **yieldWerx**.

While the yieldWerx SPC Module is doing inline monitoring of test operations, root cause analysis is accelerated by having the same data instantly accessible by the YieldWerx Enterprise analysis tools.

Summary

The **yieldWerx's** SPC module along with yieldWerx's Enterprise Module has provided the company with an automated capability to analyze production variance. Engineers get alerts in real-time if the process variations are showing anomalies. These engineers can then use **yieldWerx** Enterprise software to compare the distribution with trend charts, slice dice and analyze the data to create a detailed action plan. Benefits include higher reliability and equipment throughput. Better customer transparency and shorter time to resolve problems.

Note: If you are interested in knowing more of this case, the CIO of the silicon-valley fabless semiconductor company is willing to share his experience of working with yieldWerx.