SYNOPSYS®

DATASHEET

SLM Silicon.da Monitor Analytics

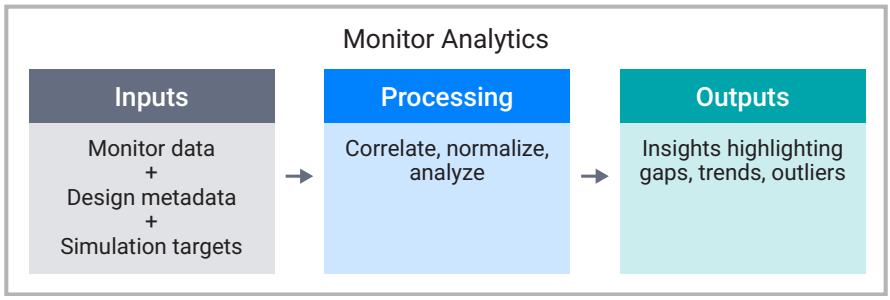
Analytics for in-chip monitor data from new product introduction (NPI) through high-volume manufacturing (HVM)

Actionable insights to accelerate root-cause analysis and improve silicon performance, yield, and quality across the silicon lifecycle

Product Overview

Silicon.da Monitor Analytics transforms in-chip monitor data into actionable insights that help engineering teams understand silicon behavior from early bring-up through HVM. By correlating measured silicon data with design intent, test conditions, and expected targets, the solution enables faster identification of performance, yield, and quality issues across the product lifecycle.

Built on a common analytics foundation from industry-leading Synopsys Silicon.da platform for manufacturing test data analytics, Monitor Analytics delivers consistent visibility from NPI into production, supporting both deep investigation during early silicon and scalable monitoring during ramp and HVM.



Key Benefits

- Maintain continuity between design intent and manufacturing reality across the silicon lifecycle
- Accelerate root-cause analysis during early silicon bring-up
- Improve yield, performance, and quality decisions using real silicon data
- Quickly identify design, model, or process-related deviations from expected behavior
- Enable consistent analytics across NPI, ramp, and HVM production

Key Capabilities

Design-aware Correlation and Normalization

- Correlate monitor data with design metadata, test context, and expected targets
- Normalize results using gap-to-target metrics to highlight deviations

Root-cause Analysis and Exploration

- Perform multivariate and DOE analysis across monitor configurations
- Identify early design, model, or process issues
- Interactively explore engineering lots and test vehicles

Spatial and Temporal Analytics

- Analyze variation across dies, wafers, lots, and sub-lots
- Track temporal trends to detect emerging issues

Scalable Production Analytics

- Ingest and analyze high-volume monitor data at scale
- Automatically detect outliers and condition-dependent behavior

Across the Silicon Lifecycle

Lifecycle Stage	Focus	How Monitor Analytics Helps
NPI: Design validation and early silicon analysis	Validate design assumptions and debug silicon behavior	Correlate measured monitor data with design intent, perform gap-to-target analysis, and identify root causes across engineering lots and test vehicles
HVM: Production monitoring and yield optimization	Ensure consistent product performance at scale	Monitor trends across wafers and lots, detect outliers and condition-dependent behavior, and track variation over time

Target Use Cases

- Gap-to-Target analysis
- Model-to-Hardware correlation
- Design of experiments (DOE) analysis
- Automated outlier detection
- Spatial and temporal trend analysis
- High-volume production monitoring
- Silicon timing failure root-cause analysis