AARK SIMULATORS

- Reducing cycle times by up to **30%**
- Enhancing yield by **10-20%**
- Decrease defect rates by up to **50%**

Pain areas in semiconductor fabrication that could be addressed with equipment and host simulators include process optimization, defect reduction, and cost management. Simulators can improve process efficiency by predicting outcomes and identifying optimal conditions, potentially.

Additionally, simulators can significantly cut costs associated with physical prototyping and testing, contributing to a potential 20-25% reduction in overall production costs.

AARK Host Simulator/Equipment Tester

- The Host Simulator doubles as an equipment tester application, enabling connection to tools for SECS/GEM characterization.
- It gathers the necessary tool data to develop a Host application for tool interfacing.

AARK Host Application

- The Host Application interfaces with tools using the SECS/GEM HSMS protocol and integrates with other manufacturing systems in the fab.
- It is customizable to accommodate various fab scenarios.

Capabilities

GUI

- HSMS Configuration page
- Select options for logging at various levels
- Log viewer
- SxFx Message List
- Message Category Viewer
- Alarm viewer
- Error viewer
- Scrap Book
- Project explorer
- Font selection for better readability

Database

- Collect and store real-time tool data in an RDBMS (like MS SQL or Oracle).
- DB tables are: Config, History, and Log tables
    1. Config table: Event Config, Status Variable Config, Alarm Config, Report Definitions, Link Events
    2. History table: Track the history of config table changes
    3. Log tables: Event Logs, Alarm Logs, Status Variable Logs, Trace Logs

Features

Event Notification

Real-time notification of equipment activities

Alarm Notification

Real-time notification of equipment alarms

Data Variable Collection

Real-time equipment data

Adjust Settings

Change equipment settings

Operator Interface

Exchange messages with operator

Adjust Equipment settings

Equipment Constant IDs (ECIDs)

Remote Control

Support S2F41 Remote commands like PP-SELECT, START, STOP, ABORT, PAUSE, RESUME, LOAD, UNLOAD

Recipe Management

Tool Recipe List (S7F20) Recipe Upload/Download(S7F3/S7F5/S7F23/S7F25) Delete Recipes

Report Definitions

Link Events to Reports Define

Reports S2F33, Link Events S2F35, Enable/Disable Events S2F3

Tool Data Collection

Real-time data collection: Process Parametric data: Status Variable Values(S1F4), Trace Data values(S6F1), Events Notification (S6F11), Alarms Notification (S5F1)

Terminal Messages

Exchange messages with operators through Terminal Messages