

EDA Assessment

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Agenda

- **Standards Requirements**
- **EDA Evaluation Method**
- **EDA Evaluation Tools**
- **EDA Client Connection Emulator**

Requirements Identification

- **The situation and challenge:**
 - SEMI standards are not clear on requirements and are subject to interpretation, and there are *many hundreds* of requirements
 - Currently, two knowledgeable engineers can each review the same standard and arrive at two different solutions
 - The standards do not provide a context for implementation, so suppliers use the equipment point of view rather than fab needs
 - The results cost the fab. Variability and bugs slow ramp, require customization for each equipment version, with maintenance for the life of the fab
- **The solution:**
 - Create definitive consensus requirements lists from the fab point of view
 - Identify every requirement in a standard
 - Improve standardization and quality, which will reduce cost
 - Make the requirements lists commercially available
 - Influence the industry toward standardization
 - Enable supplier quality improvement and first pass success rate

ISMI Requirements Lists

- Over the past year, ISMI has been engaged in requirement identification. The target standards include
 - SEMI E40: Standard for Processing Management
 - SEMI E84: Specification for Enhanced Carrier Handoff Parallel I/O Interface
 - SEMI E87: Specification for Carrier Management (CMS)
 - SEMI E90: Specification for Substrate Tracking
 - SEMI E94: Specification for Control Job Management
 - SEMI E5: SEMI Equipment Communications Standard 2 Message Content (SECS-II)
 - SEMI E30: Generic Model for Communications and Control of Manufacturing Equipment (GEM)
 - SEMI E37.1: High-Speed SECS Message Services Single Selected-Session Mode (HSMS-SS)
 - SEMI E39: Object Services Standard
 - SEMI E109: Specification for Reticle and Pod Management (RPMS)
 - SEMI E132, E132.1: Specification for Equipment Client Authentication and Authorization
 - SEMI E134, E134.1: Specification for Data Collection Management
 - SEMI E125, E125.1: Specification for Equipment Self Description (EqSD)
 - SEMI E120, E120.1: Specification for the Common Equipment Model (CEM)
 - ISMI Equipment Data Acquisition (EDA) Usage Scenarios Rev. B: SEMATECH DOC ID #04104579B-TR
 - ISMI 300mm Operational Flowcharts and Scenarios, v10: SEMATECH DOC ID #04014488A-TR
 - ISMI Manufacturing Operation and Exception Scenarios for Reliable High Volume Manufacturing, v3.0: SEMATECH DOC ID #03084426C-ENG
- ISMI believes that these requirements form the basis for robust conformance testing and an Advanced Software Tester
 - Establish deterministic criteria for purchase specification as well as conformance and acceptance testing
 - Test metrics would reflect performance to a complete list of requirements from the standards
- ISMI will make our requirements lists commercially available in 2007

ISMI EDA Evaluation Method Update

- ISMI has published an update to the method for the evaluation of early EDA implementations:
 - Evaluates the implementation of basic functional requirements
 - Includes evaluation of the most common expected used scenario (Happy Path case)
 - Provides some subjective performance measures
 - Based on actual equipment evaluations
 - Does not evaluate exception cases
 - Does not perform a high integrity test of all functions and requirements of the standards and guidelines
- Available on ISMI public web page
<http://ismi.sematech.org/docubase/abstracts/4664btr.htm>



ISMI EDA Interim Evaluation Utilities (EIEU)

- ISMI has been working with several suppliers to validate their commercial EIEU offerings
- Automated execution of the ISMI EDA Evaluation Method
 - Repeatable and reproducible
 - Includes basic analysis
 - Performance metrics
 - Supplier may include additional functionality for differentiating value
- Must be purchased from the supplier who developed it
- The ISMI Test Service Provider (TSP) Initiative will support an EIEU Protocol for commercial availability and deployment
- ISMI-validated EIEU suppliers can be located on our public web site: <http://ismi.sematech.org/industry/emanufacturing.htm>

Asyst: EDATest

The screenshot displays the Asyst: EDATest software interface. The top window shows a project tree with 'EdaTest\EdaTest.dll' selected. Below it are 'Run' and 'Stop' buttons. The bottom window shows a 'New Session' dialog with a 'Test List' containing 7 items, a 'Run Time Log' with SOAP request details, a 'Performance Monitor' with a bar chart showing 6 passed and 1 failed tests, and a 'Passing Rate' gauge showing 85.71%.

Open Integration: OpenEIEU_plus

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EDA Client Connection Emulator

- ISMI's contract for distribution of the EDA Client Connection Emulator (ECCE) based on Cimatrix technology ended September 2006
- Cimatrix migrated the ECCE to the open source community per agreement and contract.
 - Available as of October 2006
 - As an open source application, the ECCE role will still be supported
 - The user community will be able to suggest improvement and enhancements
 - Source code and derivative products would require a separate commercial license with Cimatrix

