



ISMI e-Manufacturing Workshop

Experience of EDA Interface Development

Dec. 6, 2005

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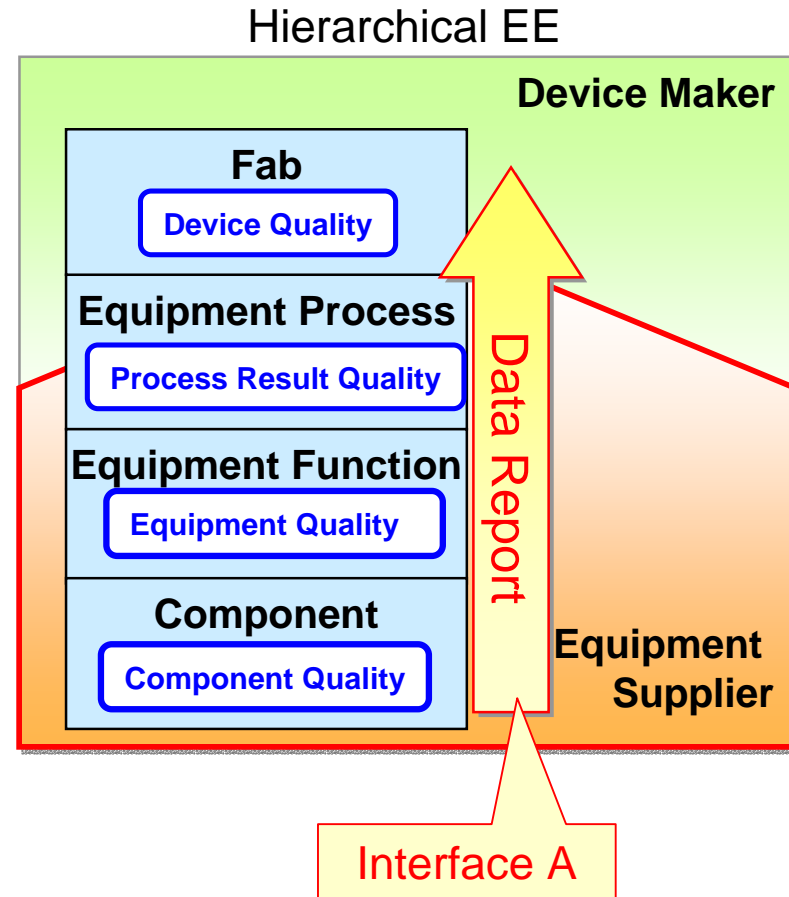
Need of EES

- Grasp equipment status by DATA
- Share equipment status by DATA
 - Among appropriate people with expertise
- Analyze equipment status by DATA
 - Characterize problem with data
 - Identify needs of improvement with data

- DATA is Value

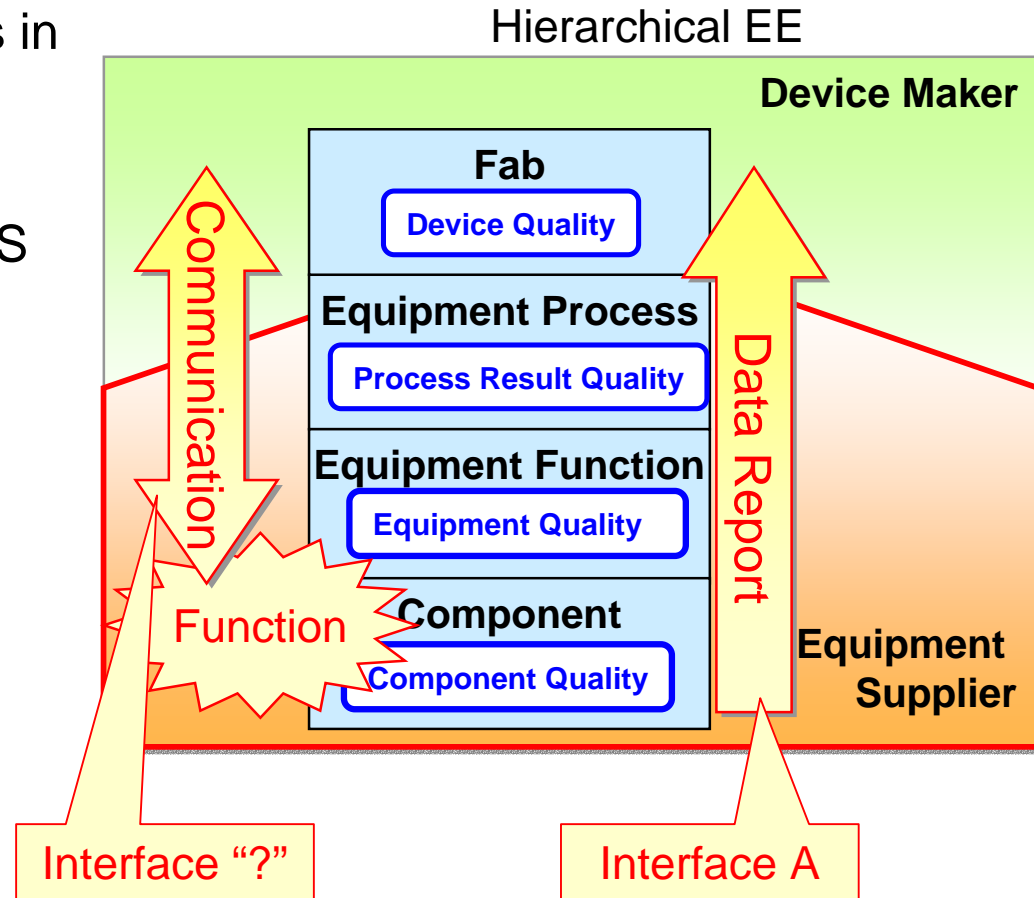
Hierarchical EE and the Position of Interface A

- Strategic Hierarchical EE concept
 - Improve fab controllability and maintainability
 - Recipe-sensitive vs. Recipe-Insensitive
 - Wafer-sensitive vs. Wafer-Insensitive
 - Data reduction per usage model
- Higher layers to be done by DMs
 - Equipment to provide data needed for this
 - “Interface A” is an inter-layer interface for this purpose
- Lower layers to be done by equipment suppliers
 - Localize local issue and reduce data
 - How about a communication mechanism for this??



How to Support Fully Hierarchical EE?

- To perform Hierarchical EE, equipment has some functions in its boundary
- Need mechanism for communication between F-EES and the functions
 - Down load function
 - Activate/Deactivate
 - Put commands
 - Get data
 - etc.
- May need some extension to Interface A



Value of Interface A Standards

- Provide Inter-Layer interface, as a key for Hierarchical EE System
 - by sharing required equipment data with adjacent layers
 - by enabling collaborations between the adjacent layers
- Reduce cost and time to implement the interface
 - by standardized data description and communication protocol
- Accelerate implementation of EES in the industry

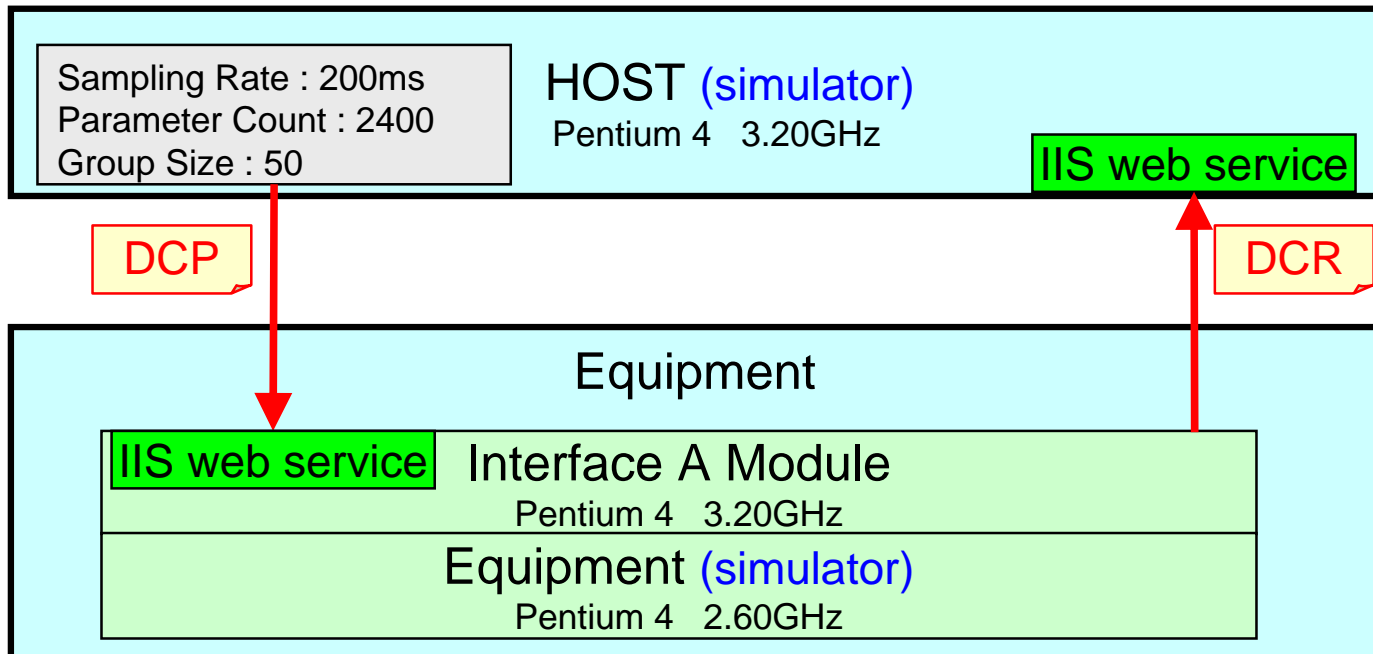
To Keep The Value of Interface A Standards

- Lessons learned from 300mm CIM standards
 - Frequent revisions to SEMI standards caused confusions
 - Equipment specification may differ depending on implementation timing
 - Lack of upward compatibility caused fundamental software modification
 - Interpretation gap of SEMI standards among DMs caused variations
- Key messages
 - Keep upward compatibility of standards
 - Early amendment to ambiguous portion is essential to avoid implementation variation
 - Enrich unified implementation guides jointly endorsed by DM consortia
 - DM's compliance to standards and guides

Implementation Report

- Test Summary

- Test Method : “ISMI Evaluation Method”
- Goal : 10,000 values/sec (by ISMI)
- Result : Cleared ISMI goal



Summary

- Hierarchical EE concept is essential for EES (for Win-Win Relationship)
- Interface A is an Inter-Layer-Interface key for Hierarchical EE
- May need functional extension to support FULLY Hierarchical EE
- Upward compatibility maintenance is important to keep the value
- DMs and suppliers needs to correctly comply to the SEMI standards
- 2006 will be the first year of Interface A application