

# SEMICON Japan

## e-Manufacturing Workshop Concluding Remarks

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# References

## e-Manufacturing

- **e-Diagnostics Guidebook, v2.1, 01084153D-ENG**  
[ismi.sematech.org/docubase/document/4153deng.pdf](http://ismi.sematech.org/docubase/document/4153deng.pdf)
- **EEC Guidelines, v2.5**  
[ismi.sematech.org/emanufacturing/docs/eecguidebook.pdf](http://ismi.sematech.org/emanufacturing/docs/eecguidebook.pdf)
- **EEC High-level Requirements for APC**  
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- **Virus Protection, 04104567B-ENG**  
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# References

## Interface A

- **SEMI EDA standards: E120, E125, E132, E134, E138**  
[downloads.semi.org/PUBS/SEMIPUBS.NSF/webstandardssoftware!OpenView](http://downloads.semi.org/PUBS/SEMIPUBS.NSF/webstandardssoftware!OpenView)  
[teams.semi.org/QuickPlace/stds\\_icdda/Main.nsf/h\\_Toc/](http://teams.semi.org/QuickPlace/stds_icdda/Main.nsf/h_Toc/)
- **EDA Usage Scenarios, Rev. B, 04104579B-TR**  
[ismi.sematech.org/docubase/abstracts/4579btr.htm](http://ismi.sematech.org/docubase/abstracts/4579btr.htm)
- **EDA Evaluation Methodology, V3.0, 05074664B-TR**  
[ismi.sematech.org/docubase/abstracts/4664btr.htm](http://ismi.sematech.org/docubase/abstracts/4664btr.htm)
- **Equipment Data Acquisition (EDA) Metadata Guidance, 06034748A-ENG**  
[ismi.sematech.org/docubase/abstracts/4748aeng.htm](http://ismi.sematech.org/docubase/abstracts/4748aeng.htm)

## Recipe and Parameter Management

- **SEMI RaP Standard: E139**
- **Recipe and Parameter Management (RaP) Supplier Guidance, 06104801A-ENG**  
[ismi.sematech.org/docubase/abstracts/4801aeng.htm](http://ismi.sematech.org/docubase/abstracts/4801aeng.htm)

# References

## Data Quality

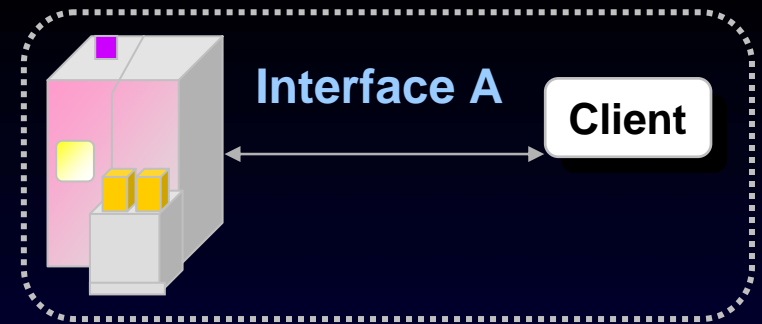
- **Factory and Equipment Clock Synchronization and Time Stamping Guidelines, 06094781A-ENG**  
[ismi.sematech.org/docubase/abstracts/4781aeng.htm](http://ismi.sematech.org/docubase/abstracts/4781aeng.htm)
- **Semiconductor Factory and Equipment Clock Synchronization for e-Manufacturing, 094557A-ENG**  
[ismi.sematech.org/docubase/abstracts/4557aeng.htm](http://ismi.sematech.org/docubase/abstracts/4557aeng.htm)
- **Using Network Time Protocol (NTP): Introduction and Recommended Practices, 06024736A-ENG**  
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# Interface A Accomplishments

ISMI drove the industry to standardize a second data port (Interface A) to enable the member companies to obtain more and better equipment data

- ✓ Established member company consensus requirements and communicated requirements to suppliers
- ✓ Standardization is complete, modern Internet-based interface standards
- ✓ ISMI Sponsored Prototypes demonstrated Interface A feasibility
- ✓ Performance Studies demonstrated Interface A capabilities
  - ✓ Performance not an issue on properly architected solutions
  - ✓ ISMI Usage Scenarios represent the member company fab usage and define expected behaviors
  - ✓ EDA Evaluation Method provides common functional execution scenarios

# Maturing Interface A



- ✓ **Compatibility Profiling**
  - ✓ Support for commercial implementers to confirm software interoperability
- ✓ **Reference Client Implementation**
  - ✓ ISMI providing common client software to suppliers (.exe file) and ISMI members (source code)
  - ✓ Using client to evaluate implementations
- ✓ **Stability**
  - ✓ ISMI members froze standards suite version 1105
- ✓ **Implementation Assessment**
  - ✓ Working with suppliers to provide an Advanced Software Tester for the industry

# RaP Accomplishments To Date

ISMI recognized the challenges of recipe management and saw opportunity

- ✓ Proved the concepts with an “early learning” prototype
- ✓ Defined the Standard for RaP (SEMI E139)
- ✓ Initiated commercial implementation with the AIS/Roth & Rau “commercial prototype”
- ✓ Encouraged additional commercial implementations (Semitool Raider)
- ✓ Published supplier guidelines to assist implementers

# Moving RaP to Production Usage

- **Maturing RaP**
  - **Compatibility Profiling**
    - **Confirming interoperability of implementations**
  - **Developing RaP reference implementation**
    - **Similar to ECCE for Interface A**
  - **Encouraging more RaP implementations**
- **Shifting focus toward factory considerations**
  - **Exploring barriers to factory implementation**
  - **Gathering consensus requirements for recipe management systems**
  - **Demonstrating RaP in production settings**

# Conclusion

- *ISMI responded to member requirements*
- *Interface A enables transmission of process and equipment data for e-Manufacturing*
  - *APC (Fault Detection & Classification, Run-2-Run Control)*
  - *Equipment health monitoring*
  - *Other equipment productivity applications*
- *RaP enables confidence in recipe integrity and parameter support for data-driven decisions*
  - *Closes the loop: Collect, Analyze, Act*
- *Interface A deployment is ramping!*
- *RaP availability is ramping – deployment is next!*

**ISMI brings a new generation of  
factory capabilities and applications**

# What's Next

- **Interface A deployment**
- **Recipe and Parameter Management commercialization underway**
- **Data quality is required for factory optimization**
  - **Begins with time synchronization guidelines and standard**

# Thank You

- **Speakers**
  - **ISMI: Lance Rist, Gino Crispieri**
  
- **For your attendance and interest**