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Equipment and Material Traceability Task Force Meeting

April 04, 2019

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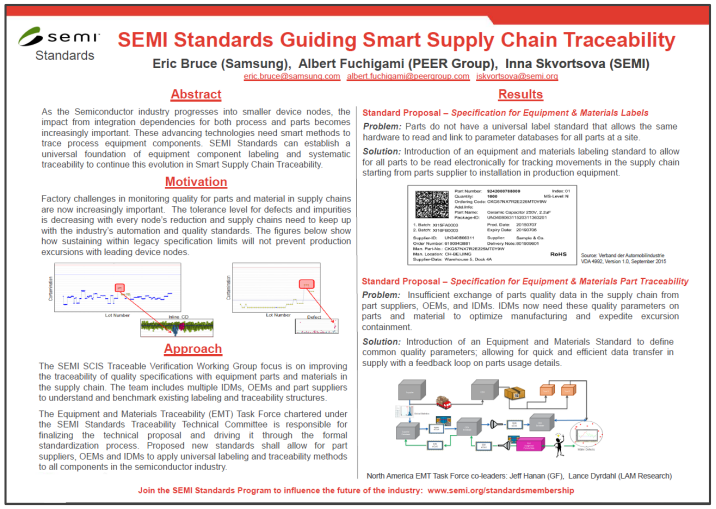
TF Meeting Summary

- April 4, 2019
  - 3 in person
  - 1 remote/online
- TF Leadership & changes (if any):
  - None

Building Awareness of the ETM Standards in Development

- SEMICON Japan 2018
- – Technical Poster
  - – Presentation at Traceability Workshop



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SEMI Standards Guiding Smart Supply Chain Traceability

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Abstract

As the Semiconductor industry progresses into smaller device nodes, the impact from integration dependencies for both process and parts becomes increasingly important. These advancing technologies need smart methods to trace process equipment components. SEMI Standards can establish a universal foundation of equipment component labeling and systematic traceability to continue this evolution in Smart Supply Chain Traceability.

Motivation

Factory challenges in monitoring quality for parts and material in supply chains are now increasingly important. The tolerance level for defects and impurities is decreasing with every node's reduction and supply chains need to keep up with the industry's automation and quality standards. The figures below show how sustaining within legacy specification limits will not prevent production excursions with leading device nodes.

Approach

The SEMI SCIS Traceable Verification Working Group focus is on improving the traceability of quality specifications with equipment parts and materials in the supply chain. The team includes multiple IDMs, OEMs and part suppliers to understand and benchmark existing labeling and traceability structures.

The Equipment and Materials Traceability (EMT) Task Force chartered under the SEMI Standards Traceability Technical Committee is responsible for finalizing the technical proposal and driving it through the formal standardization process. Proposed new standards shall allow for part suppliers, OEMs and IDMs to apply universal labeling and traceability methods to all components in the semiconductor industry.

Results

Standard Proposal – Specification for Equipment & Materials Labels

Problem: Parts do not have a universal label standard that allows the same hardware to read and link to parameter databases for all parts at a site.

Solution: Introduction of an equipment and materials labeling standard to allow for all parts to be read electronically for tracking movements in the supply chain starting from parts supplier to installation in production equipment.

Source: Verband der Automobilindustrie VDA 4902, Version 1.0, September 2015

Standard Proposal – Specification for Equipment & Materials Part Traceability

Problem: Insufficient exchange of parts quality data in the supply chain from part suppliers, OEMs, and IDMs. IDMs now need these quality parameters on parts and material to optimize manufacturing and expedite excursion containment.

Solution: Introduction of an Equipment and Materials Standard to define common quality parameters; allowing for quick and efficient data transfer in supply with a feedback loop on parts usage details.

North America EMT Task Force co-leaders: Jeff Hanan (GF), Lance Dyrdahl (LAM Research)

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- SEMICON Korea 2019
  - – Presentation at I&C Technical Committee Meeting
  - – Part of Smart Manufacturing Presentation

- SEMI Texas Spring Forum March 28, 2019
  - – Samsung Case Studies and SCIS/Standards Traceability initiatives

Work in Progress - Standard Large Label

Input Needed to define:
ZMS –level #
Package ID #

Serial Number	112233
Manufacturer ID	I0S2
Label Type	New Part
Label Version / Revision	Rev 1
OEM	MB3S21-111122-33
OPM	##

Country of Origin	Sweden
Manufacturer Site	AG15
Manufacturer Date	3/15/2019
OEM MFG Rev #	33
OPM MFG Rev #	33
Order Code	PO#?
Customer Part Number	111-222333
UUID – Universal Unique Identifier	##
PO Number	123456789
Date of Expiration	n/a

Batch /Lot Number	73
Customer Contact	555-672-1000
Material Description Part Description	SST Plate
Additional Part Information	##
ZMS – Level	?
Package ID	?
Delivery Notes	Tool Down Order

RoHS

SNARFs

- New SNARFs proposals
  - None
- Revised SNARFs proposals
  - None
- SNARFs to abolish
  - None

Traceable Verification– 2019/2020 Milestones
(2019 Q1 Revision)

Milestone	Complete by	Status
Approval of SNARF for Parts Labeling and Information Exchange	July 2018	Complete
Complete 1st Draft of the ballot based on IDM Requirements for Parts Labeling	April 2019	In Progress
Review Labeling Draft with OEM and Parts Suppliers from Traceability Members	May 2019	Not Started
Share Labeling Draft with F2F SCIS Traceable Verification Meeting	July 2019	Not Started
Add Labeling Standard to Technical Committee Review	September 2019	Note Started
Review SEMICON and Traceability Feedback and updates F2F	October 2019	Not Started
Balloting # 6448 (Specification for Equipment and Materials Labels) in Q1 2020	Cycle 2-2020	Not Started

* Specification for Equipment and Materials Labels (Ballot #6448) will be drafted while waiting feedback from Part Label Draft

- **Current Road Blocks**
  - IDM & OEM resources and development time from experts
    - Input from IDM & OEM needed
  - Defining standard for grandfathered 1D barcode and RF labels
  - Defining protected data and open data for Data Matrix and Human Readable Labels
  - Expert feedback in 2D barcode marking on small parts

Ballot Activity Summary

- Ballot Adjudication:
  - None

- New ballots and Ballot Plans
  - Plan to get authorization for ballots submission at Fall 2019 Meetings
    - **6448 - New Standard – Specification for Equipment and Materials Part Labels**
      - **Ballot planned in Cycle 2-2020**
    - 6449 - New Standard – Specification for Equipment and Materials Part Traceability
      - Start drafting document with IDM initial requests while Label Standard is under review by OEM members
      - Balloting plan TBD

TF Activities

- TF has been meeting remotely monthly since January 2019
  - Break was taken for holiday in November and December
- SCIS Feb 2019 F2F Meeting
  - **Finalized consensus to use 2D Data Matrix framework as label format (eliminated QR Matrix format)**
- Working on Draft Ballots – focusing on Traceability Labels
  - Look at IDM requirements as a starting point
  - Review migration path of existing method adoption (example 1D to create ability for ‘grandfathered’ requirements into proposed standard

Upcoming Activities

- Continued Progress During Biweekly EMT Task Force Teleconference Meetings
  - Focusing on content generation for labeling standard proposal
- ASMC 2019 may provide good opportunity to raise awareness of EMT activities among participants due to co-location with SCIS Traceable Verification SIG
- Planning feedback sessions at SCIS SEMICON West July 2019
- Look at developing Traceability Standards datasheet for SEMICON West 2019
  - EMT, SDT, Traceability TC leaders

Task Force Meeting Schedule

- EMT TF Conference calls
  - Mondays 3-4pm PT
    - Next Call April 15th
- Next Face to Face Meetings
  - SEMICON West, 2019
  - Location/date/time/ teleconferencing information to be provided
  - Contact

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Backup

Action Items Review

- Previous Meeting Action Items

Name	*Due Date*	*Action Item*

- New Action Items

Name	*Due Date*	*Action Item*
Eric Bruce	6/1/2019	Build Sample 2D Barcode Large Label for Standard