



Physical Interfaces & Carriers North America TC Chapter

Meeting Summary and Minutes

NA Standards Spring 2017 Meetings

Wednesday, April 5, 2017, 09:00 – 12:00

SEMI Headquarters, Milpitas, California

TC Chapter Announcements

Next TC Chapter Meeting

SEMICON West 2017 Meetings

Wednesday, July 12, 2017, 10:30 – 12:00

Marriott Marquis Hotel in San Francisco, California

Table 1 Meeting Attendees

Italics indicate virtual participants

Co-Chairs: Matt Fuller (Entegris), Melvin Jung (Intel)

SEMI Staff: Laura Nguyen

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
Alan Crockett	Crockett	Alan	Intel	Quinn	Tom
<i>Brooks Automation</i>	<i>Babbs</i>	<i>Daniel</i>	Murata Machinery	Tominaga	Tadamasa
<i>Global Foundries</i>	<i>Downey</i>	<i>Jack</i>	SUMCO Corporation	Nakai	Tetsuya
<i>Global Foundries</i>	<i>Rothe</i>	<i>Jan</i>	TEL	Mashiro	Supika
Daifuku	Yamagata	Kenji			
Intel	Jung	Melvin	SEMI	Nguyen	Laura

Table 2 Leadership Changes

None

Table 3 Committee Structure Changes

<i>Previous WG/TF/SC Name</i>	<i>New WG/TF/SC Name or Status Change</i>
International Reticle SMIF Pod and Load Port Interoperability Task Force	Disbandment of global TF endorsed by NA TC Chapter. Additional endorsement from EU and JP still required.
International 450 mm Physical Interfaces & Carriers (IPIC) Task Force	Disbandment of global TF endorsed by NA TC Chapter. Additional endorsement from EU and JP still required.

Table 4 Ballot Results

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
6051A	Line Item Revisions to SEMI E111-1213, Mechanical Specification for a 150 mm Reticle SMIF Pod (Rsp150) Used to Transport and Store a 6 Inch Reticle	
Line Item 1	Correct the title of SEMI E111 from “Mechanical Specification for a 150 mm Reticle SMIF Pod (Rsp150) Used to Transport and Store a 6 Inch Reticle” to “Specification for a 150 mm Reticle SMIF Pod (RSP150) Used to Transport and Store a 6 Inch Reticle”	Passed as balloted.
Line Item 2	Correct definitions to conform to the Style Manual as indicated	Passed as balloted.



Table 4 Ballot Results

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
6052A	Line Item Revision to SEMI E112-1213, Mechanical Specification for a 150 mm Multiple Reticle SMIF Pod (MRSP150) Used to Transport and Store Multiple 6 Inch Reticles	
Line Item 1	Correct the title of SEMI E112 from “Mechanical Specification for a 150 mm Multiple Reticle SMIF Pod (MRSP150) Used to Transport and Store Multiple 6 Inch Reticles” to “Specification for a 150 mm Multiple Reticle SMIF Pod (MRSP150) Used to Transport and Store Multiple 6 Inch Reticles”	Passed as balloted.
Line Item 2	Correct definitions to conform to the Style Manual as indicated	Passed as balloted.

#1 **Passed** ballots and line items will be submitted to the ISC Audit & Review Subcommittee for procedural review.

#2 **Failed** ballots and line items were returned to the originating task forces for re-work and re-balloting or abandoning.

Table 5 Activities Approved by the GCS prior to the Originating TC Chapter meeting

None

Table 6 Authorized Activities

None

Table 7 Authorized Ballots

None

Table 8 SNARF(s) Granted a One-Year Extension

None

Table 9 SNARF(s) Abolished

None

Table 10 Standard(s) to receive Inactive Status

<i>Standard Designation</i>	<i>Title</i>
SEMI E162-0912	Mechanical Interface Specification for 450 mm Front-Opening Shipping Box Load Port
SEMI E1.9-1106E (Reapproved 0512)	Mechanical Specification for Cassettes Used to Transport and Store 300 mm Wafers
SEMI E47-0301 (Reapproved 0512)	Specification for 150 mm/200 mm Pod Handles
SEMI E47.1-1106 (Reapproved 0512)	Mechanical Specification for FOUPS Used to Transport and Store 300 mm Wafers
SEMI E62-1106 (Reapproved 0512)	Specification for 300 mm Front-Opening Interface Mechanical Standard (FIMS)
SEMI E64-1105 (Reapproved 0512)	Specification for 300 mm Cart to SEMI E15.1 Docking Interface Port
SEMI E119-0706 (Reapproved 0512)	Mechanical Specification for Reduced-Pitch Front-Opening Box for Interfactory Transport of 300 mm Wafers
SEMI E144-0312	Specification for RF Air Interface Between RFID Tags in Carriers and RFID Readers in Semiconductor Production and Material Handling Equipment
SEMI E101-1104 (Reapproved 0710)	Guide for EFEM Functional Structure Model
SEMI E100-1104 (Reapproved 0710)	Specification for a Reticle SMIF Pod (RSP) Used to Transport and Store 6 Inch or 230 mm Reticles

Table 10 Standard(s) to receive Inactive Status

<i>Standard Designation</i>	<i>Title</i>
SEMI E15-0698E2 (Reapproved 1016)	Specification for Tool Load Port
SEMI E131-0304 (Reapproved 0310)	Specification for the Physical Interface of an Integrated Measurement Module (IMM) into 300 mm Tools Using Bolts-M

Table 11 New Action Items

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
2017April#01	Melvin Jung	To contact Shoji Komatsu to present a proposal for the editorial changes to add AUX number to Docs E154, E158, and E1509. CLOSED.
2017April#02	Laura Nguyen	To submit Shoji Komatsu access to docs for E154, E158, E159 to propose editorial changes for AUX 450mm.
2017April#03	Kenji Yamagata	To communicate with Japan ATDP Task Force for opinion on NA ATDP TF to sun-set and whether they want to sun-set/disband or keep as inactive. CLOSED.
2017April#04	Laura Nguyen	To identify which documents under the global task forces belong to which committees.
2017April#05	Laura Nguyen	To include Supika on the drafting of the TEM Grid survey before distribution. CLOSED.

Table 12 Previous Meeting Action Items

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
2016Nov#01	Matt Fuller	To contact Stefan Radloff if he wants to continue the ATDP TF or sunset. CLOSED.

1 Welcome, Reminders, and Introductions

Melvin Jung (Intel) called the meeting to order at 9:01. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves.

Attachment: SEMI Standards Required Meeting Elements

2 Review of Previous Meeting Minutes

The TC Chapter reviewed the minutes of the previous meeting.

Motion: To accept the previous meeting minutes as written.

By / 2nd: Kenji Yamagata (Daifuku) / Tom Quinn (Intel)

Discussion: None.

Vote: 5-0 in favor. Motion passed.

Attachment: [2016Fall] PIC Minutes FINAL

3 Liaison Reports

3.1 PIC Europe TC Chapter

There is no liaison report for PIC Europe TC Chapter at this time. The last report can be found in the PIC NA Fall 2016 Minutes. This Committee meets once a year. Last meeting was held on October 26, 2017 in conjunction with SEMICON Europa 2016. Next meeting will be held in conjunction with SEMICON Europa, November 14-17, 2017. Please check the main Web site for details.

3.2 PIC Japan TC Chapter

Kenji Yamagata (Daifuku) reported for the PIC Japan TC Chapter. Of note:

- Leadership
 - Committee Co-chairs [Tsuyoshi Nagashima (Miraial), Kenji Yamagata (DAIFUKU)]
 - Tsutomu Okabe (TDK) – Step down as a co-chair at the last PIC Japan TC Chapter meeting in December 2016.
 - Noriyoshi Toyoda (Hirata Corporation) – Newly appointed by JRSC at the JRSC meeting on August 26, 2016.
 - Technical Architect – Shoji Komatsu (Acteon NEXT)
- Current Structure of Japan TC Chapter *{See attachment for Org Chart}*
- Meeting Information
 - Last meeting: Japan Winter 2016 Meetings in conjunction with SEMICON Japan 2016, Wednesday, December 14, 2016 14:00-17:00, @Tokyo Big Sight Conference Tower, Tokyo
 - Next meeting: Japan Spring 2017 Meetings, Wednesday, April 19, 2017 13:30-17:00, @SEMI Japan office, Tokyo
- Approved SNARF at Japan Winter 2016 Meetings in conjunction with SEMICON Japan 2016
 - Doc 6130, Reapproval of SEMI E84-1109, Specification for Enhanced Carrier Handoff Parallel I/O Interface
- Ballots to be reviewed at Japan Spring 2017 Meetings
 - Doc 6130, Reapproval of SEMI E84-1109, Specification for Enhanced Carrier Handoff Parallel I/O Interface
- Task Force Updates
 - Fiducial Mark Interoperability TF
 - Last TF meeting was held on November 18, 2015
 - T7 issues, Doc #5890
 - Delete all position specifications from SEMI T7 because position specifications are also described on SEMI M1 and other related Silicon Standard.
 - The ballot passed with editorial changes at the Traceability Japan TC Chapter meeting on Dec. 18, 2015 and published as T7-0516.
 - Disbandment of this TF
 - TF leaders decided to propose disbanding this TF to each technical committee
 - If this proposal is agreed by all Japan TC Chapters of Assembly & Packaging, I&C, PIC, Silicon Wafers and Traceability, then the TF will be discharged.
 - Silicon Wafers Japan TC Chapter and Assembly & Packaging Japan TC Chapter agreed in March 2017 respectively.
 - To be proposed at the next Japan TC Chapter meeting of PIC, I&C and Traceability TCs respectively.
 - Backend alignment issues with introducing fiducial mark wafer is left.
 - Would be discussed in Assembly & Packaging Japan TC Chapter after its disbandment.
 - Global PIC Standards Maintenance Task Force (JA Side)



- #6130, Reapproval of SEMI E84-1109, “SPECIFICATION FOR ENHANCED CARRIER HANDOFF PARALLEL I/O INTERFACE”
 - SNARF was approved at the PIC Japan TC Chapter meeting on December 14, 2016
 - Ballot was submitted for Cycle 1-2017
 - Rejects and comments to be reviewed at the TF meeting during NA Standards Spring 2017 Meetings
 - Ballot results to be reviewed at the PIC Japan TC Chapter meeting on April 19, 2017.
- International 450 mm Physical Interfaces & Carriers Task Force (JA Side)
 - #5974: New Auxiliary Information: “450mm PIC INTEROPERABILITY”
 - SNARF was approved at the Japan TC Chapter meeting on December 16 in conjunction with 2015
 - The publication for this AUX was approved by the PIC Japan TC Chapter at the TC Chapter meeting on December 14, 2016 and would be forwarded to GCS and A&R for subsequent approval.
 - However, Safety Check and IP Check were not done at this TC Chapter meeting on this approval procedure, so these checks to be done at the next PIC Japan TC Chapter meeting on April 19, 2017.
- Other Topic
 - Proposal of New Standards, Specification for Lamella Carriers Used in Transmission Electron Microscopes
 - According to the decision at the EU TC Chapter meeting in October during SEMICON Europa 2016, the meeting to introduce proposal was held on December 13 at SEMI Japan Office in conjunction with SEMICON Japan 2016
 - Back ground of this standardization
 - Presentation on “Enabling HVM TEM metrology support - standards for TEM lamella carriers”
 - Proposed drafts of SNARF and TFOF
 - The Japan TC Chapter agreed to support for conducting a survey regarding standardization of TEM and potential further standardization of TEM grid carrier.
 - SEMI HQ will conduct this survey.
 - Currently contents of survey form is under drafting.

Attachment: [Liaison] Japan PIC March 2017

3.3 SEMI Staff Report

Laura Nguyen (SEMI) gave the SEMI Staff Report. Of note:

- SEMI Global 2017 Calendar of Events
 - LED Taiwan (April 12-15, 2017; Taipei, Taiwan)
 - SEMICON Southeast Asia (April 25-27, 2017; Penang, Malaysia)
 - Intersolar Europe (May 31-June 2, 2017; Munich, Germany)
 - SEMICON West (July 11-13, 2017, San Francisco, California)



- SEMICON Taiwan (September 13-15, 2017; Taipei, Taiwan)
 - PV Taiwan (October 12-14, 2017; Taipei, Taiwan)
 - SEMICON Europa (November 14-17, 2017; Munich, Germany)
 - SEMICON Japan (December 13-15, 2017; Tokyo, Japan)
 - Upcoming North America Standards Meetings
 - SEMICON West 2017 (July 10-13, 2017, San Francisco, California)
 - NA Standards Fall 2017 Meetings (November 6-9 [tentative], SEMI HQ in Milpitas, California)
 - Letter Ballot Critical Dates for 2017
 - West 2017 adjudication
 - Cycle 4: ballot submission due: Apr 14/Voting Period: Apr 25 – May 25
 - Cycle 5: ballot submission due: May 12/Voting Period: May 26 – June 26
- Critical Dates 2017; <http://www.semi.org/en/Standards/Ballots>
- Standards Publications Report

<i>Cycle</i>	<i>New</i>	<i>Revised</i>	<i>Reapproved</i>	<i>Withdrawn</i>
December 2016	0	2	0	0
January 2017	1	4	4	0
February 2017	1	9	2	0
March 2017	0	16	11	0

Total in portfolio – 972 (includes 170 Inactive Standards – *see attachment to see breakdown*)

- SEMI Standards Publications – New Standards
 - SEMI PV76, Test Method for Durability of Low Light Intensity Organic Photovoltaic (OPV) and Dye-Sensitized Solar Cell (DSSC)
 - SEMI HB8, Test Method for Determining Orientation of a Sapphire Single Crystal
- Nonconforming Titles { *See attachment for full list* }
- PIC Standards needing Five-Year Review { *See attachment for full list* }
- SNARF 3 Year Status, TC Chapter may grant a one-year extension
 - None for PIC NA TC Chapter

Attachment: [2017Spring] Staff Report PIC

4 Ballot Review

NOTE 1: TC Chapter adjudication on ballots reviewed is detailed in the Audits & Review (A&R) Subcommittee Forms for procedural review. The A&R forms are available as attachments to these minutes. The attachment number for each balloted document is provided under each ballot review section below.

4.1 Document # 6051A, Line Item Revisions to SEMI E111-1213, Mechanical Specification for a 150 mm Reticle SMIF Pod (Rsp150) Used to Transport and Store a 6 Inch Reticle

4.1.1 Line Item #1: Correct the title of SEMI E111 from “Mechanical Specification for a 150 mm Reticle SMIF Pod (Rsp150) Used to Transport and Store a 6 Inch Reticle” to “Specification for a 150 mm Reticle SMIF Pod (RSP150) Used to Transport and Store a 6 Inch Reticle”

4.1.2 Line Item #2: Correct definitions to conform to the Style Manual as indicated

- Line Items #1-2 passed TC Chapter review as balloted. See attachment for ballot adjudication.

Attachment: 6051AProceduralReview

4.2 Document # 6052A, Line Item Revision to SEMI E112-1213, Mechanical Specification for a 150 mm Multiple Reticle SMIF Pod (MRSP150) Used to Transport and Store Multiple 6 Inch Reticles

4.2.1 Line Item #1: Correct the title of SEMI E112 from “Mechanical Specification for a 150 mm Multiple Reticle SMIF Pod (MRSP150) Used to Transport and Store Multiple 6 Inch Reticles” to “Specification for a 150 mm Multiple Reticle SMIF Pod (MRSP150) Used to Transport and Store Multiple 6 Inch Reticles”

4.2.2 Line Item #2: Correct definitions to conform to the Style Manual as indicated

- Line Items #1-2 passed TC Chapter review as balloted. See attachment for ballot adjudication.

Attachment: 6052AProceduralReview

5 Subcommittee and Task Force Reports

5.1 International Reticle SMIF Pod and Load Port Task Force

The task force did not meet at Spring Meetings. The NA TC Chapter decided to take a vote on sun-setting of the global task force. Additional endorsement from EU and JP are still required.

Motion: Motion to sunset the International Reticle SMIF Pod and Load Port Task Force in the North America region, and to ask the other regions to do so as well.

By / 2nd: Kenji Yamagata (Daifuku) / Jan Rothe (Global Foundries)

Discussion: Tom: Does GCS need to approve?
Supika: Yes, according to *Regulations 5.7.5.1c*

Vote: 4-0 in favor. Motion Passed.

5.2 Global PIC Maintenance Task Force

Melvin Jung (Intel) reported for the Global PIC Maintenance Task Force. Please see attachment for more details. The key items were as followed:

- Ballot Review
 - Doc. 6051A, Line Item Revisions to SEMI E111-1213, Mechanical Specification for a 150 mm Reticle SMIF Pod (Rsp150) Used to Transport and Store a 6 Inch Reticle
 - Recommend no action required for comments / approve document for publication.
 - Doc. 6052A, Line Item Revision to SEMI E112-1213, Mechanical Specification for a 150 mm Multiple Reticle SMIF Pod (MRSP150) Used to Transport and Store Multiple 6 Inch Reticles
 - Recommend no action required for comments / approve document for publication.
- Open item:
 - No objection to E84 becoming inactive
- Standards Five-Year Review {See attachment for detailed table}

Attachment: Global PIC Maintenance TF meeting Minutes March 4 2017

5.3 International 450 mm PIC (IPIC) Task Force

Melvin Jung (Intel) reported for the IPIC Task Force. The key items were as followed:

- 450mm AUX Document
 - Komatsu san will prepare a SNARF to add the AUX number to be published in E154, E158, E159
- Opens
 - Consider sun-setting the 450mm IPIC after completion of the SNARF activity. No other active business.

Discussion

- To add AUX number to be published in E154, E158, E159 under related documents in the RI does not need a SNARF or go to ballot. In PM Table 6 it states that "changes to content in RI or Various Materials, are allowable editorial changes.
- The only thing we would need to do is to approve it in the TC Chapter, see section PM 2.16.3.2.
- Also, to do this activity, does not need the active TF, so sun-setting 450 IPIC can still be done.
- For editorial changes, the change must be presented to the TC Chapter to be authorized needs to be accompanied by a "before" and "after".
 - The AUX document would need to published before this can be done. This change will be postponed to West 2017.
 - Note: The AUX document is awaiting A&R because a Safety Check and IP was not done during the Japan Winter meetings and will need to be done at their next meeting on April 19, 2017.

Other Topic

- The NA TC Chapter decided to take a vote on sun-setting of this global task force. Additional endorsement from EU and JP are still required.

Motion: Motion to sunset the International 450mm PIC (IPIC) Task Force in the North America region, and to ask the other regions to do so as well.

By / 2nd: Kenji Yamagata (Daifuku) / Tom Quinn (Intel)

Discussion: None.

Vote: 4-0 in favor. Motion Passed.

Action Item: 2017April#01, Melvin to contact Shoji Komatsu to present a proposal for the editorial changes to add AUX number to Docs E154, E158, and E1509.

Action Item: 2017April#02, Laura to send Shoji Komatsu Docs for E154, E158, E159 to propose editorial changes for AUX 450mm.

Attachment: International 450mm Physical Interfaces and Carriers TF meeting minutes March 4 2017

5.4 NA 450 mm Shipping Box Task Force

This task force meets internationally with Japan PIC TC Chapter. There is no other current activity at this time.

5.5 NA 450 mm Automated Test Die Prep (NA 450 ATDP) Task Force

This task force is currently inactive. Matt contacted Stefan, task force leader, to inquire if he wants to continue this task force or if it is okay to sunset (AI, 2016Nov#01).

- Discussion
 - The NA Chapter decided to take vote on sun-setting of this global task force. Unfortunately, this task force is an international task force with Packaging Japan TC Chapter.
 - Before this action can be done, the TF in Japan Chapter will need to agree as well.
 - GCS approval will also need to be done.

- Another concern was raised; if the two global task forces decide to sun-set, the Standards under either of the task forces need to be clarified which Committee will take ownership of the maintenance of the documents.
- Another suggestion would be to keep the task forces inactive.

Action Item: 2017April#03, Kenji Yamagata to communicate with Japan ATDP Task Force for opinion on whether they want to sun-set/disband or keep as inactive.

Action Item: 2017April#04, Laura Nguyen to identify which documents under the global task forces belong to which committees.

6 Old Business

6.1 *Standards coming up for Five-Year Review*

Melvin Jung (Intel) addressed the committee on this topic. The committee considered these documents and decided to let them go to Inactive status.

Motion: Motion to send SEMI E162, E1.9, E47, E47.1, E62, E64, E119, E144, E101, E100, E15, E131 to Inactive Status.

By / 2nd: Kenji Yamagata (Daifuku) / Tom Quinn (Intel)

Discussion: None.

Vote: 5-0 in favor. Motion passed.

Discussion – SEMI E84

- (Melvin) Would like to let E84 go inactive, but understands there needs to be a discussion on this document.
 - Note: This is a Japan document, so any activity will be brought up at the Japan committee
- (Jan) Brought up issues that happened in past meetings, and believes there should be a discussion to address the concerns later in the future.
 - There was a SNARF opened created by Japan Committee for this document in the past. It was voted on and failed twice; SNARF was then retracted sometime last year. Was this discussed in the Global PIC TF?
- (Supika) There has been discussion in the past during the Global PIC Maintenance TF.
 - There is some intrinsic contradiction in the document right now.
 - The document is still in use in the industry today, so at this time there is a mutual understanding of the contradictions and no update on next steps at this time.
- (Jan) Looking at technical issues and looking for guidance for experts to the industry
- (Melvin) Are you asking how these experts/companies are having issues?
- (Jan) SEMI Standards do not describe proper solutions to the problem.
- (Melvin) Not necessary for the Standard to solve the problem – it is the end user.
- (Jan) Will discuss internally and propose a new activity at a later date with the Japan committee.



7 New Business

7.1 Update on TEM Grid Survey

Laura Nguyen (SEMI) addressed the committee on this topic.

Supika reported that Thermo Fisher presented at the PIC and Silicon Wafer Japan TC Chapters during SEMICON Japan 2016 Standards Meetings. The PIC Japan TC Chapter agreed to support for conducting a survey regarding standardization of TEM and potential further standardization of TEM grid carrier.

Laura is in communication with Thermo Fisher and they are working on a draft survey to be distributed before SEMICON West. Laura will include Supika on the draft survey distribution so that feedback can be received before the survey is distributed. Work is on-going with no set date at this time.

Action Item: 2017April#05, Laura to include Supika on the drafting of the TEM Grid survey before distribution.

8 Next Meeting and Adjournment

The next meeting is scheduled for Wednesday, July 12, 2017 at the SEMICON West 2017 Standards Meetings in San Francisco, California. See <http://www.semi.org/en/events> for the current list of meeting schedules.

The tentative schedule is provided below:

New proposed schedule change

Wednesday, July 12

10:00 –10:30 Global PIC Maintenance (TF)

10:30 – 12:00 PIC (C)

Adjournment at 10:26.

Respectfully submitted by:

Laura Nguyen
International Standards Coordinator
SEMI Headquarters
Phone: 1.408.943.7019
Email: lnguyen@semi.org

Minutes tentatively approved by:

Matthew Fuller (Entegris), Co-chair	June 18, 2017
Melvin Jung (Intel), Co-chair	June 17, 2017

Table 13 Index of Available Attachments^{#1}

<i>Title</i>	<i>Title</i>
SEMI Standards Required Elements	6051AProceduralReview
[2016Fall] PIC Minutes FINAL	6052AProceduralReview
[Liaison] Japan PIC March 2017	Global PIC Maintenance TF meeting Minutes March 4 2017
[2017Spring] Staff Report PIC	International 450mm Physical Interfaces and Carriers TF meeting minutes March 4 2017

^{#1} Due to file size and delivery issues, attachments must be downloaded separately. A .zip file containing all attachments for these minutes is available at www.semi.org. For additional information or to obtain individual attachments, please contact Laura Nguyen at the contact information above.