

North America Physical Interfaces & Carriers (PI&C) Technical Committee Chapter Meeting Summary and Minutes

North America Standards Fall 2014 Meetings
Wednesday, November 05 2014, 9:00 AM – 12:00 PM Pacific Time
Intel Headquarters (Robert Noyce Building) in Santa Clara, California

Next N.A. Physical Interfaces & Carriers TC Chapter Meeting

The next N.A. Physical Interfaces & Carriers TC Chapter meeting is tentatively scheduled on April 1, 2015 at Intel Headquarters (Robert Noyce Building) in Santa Clara, California in conjunction with the N.A. Standards Spring 2015 meetings. See §9 of these minutes for tentative times for all meetings. Exact meeting date and details will be announced when finalized and available at <http://www.semi.org/node/54226>

Table 1 Meeting Attendees

Co-Chairs: Matt Fuller (Entegris) / Stefan Radloff (Intel)

SEMI Staff: Michael Tran

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
Acteon Corporation	Komatsu	Shoji	Intel	Radloff	Stefan
<i>Brooks Automation</i>	<i>Babbs</i>	<i>Daniel</i>	Miraial	Nagashima	Tsuyoshi
Consultant	Crockett	Alan	Muratec	Yamamoto	Makoto
Daewon	Sanders	Trevor	SUMCO	Nakai	Tetsuya
Daifuku	Yamagata	Kenji	Tokyo Electron	Mashiro	Supika
Entegris	Fuller	Matt	U.A. Associates	Hartsough	Larry
Intel	Jung	Melvin			
Intel	Quinn	Tom	SEMI N.A.	Tran	Michael

**Italics indicates virtual participants*

Table 2 Leadership Changes

<i>Group</i>	<i>Previous Leader</i>	<i>New Leader</i>
International Reticle SMIF Pod and Load Port Interoperability Task Force	Astrid Gettel (Globalfoundries), stepped down Koji Oyama (Dainichi Shoji), stepped down	Jan Rothe (Globalfoundries)

Table 3 Ballot Results

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

Failed ballots and line items were returned to the originating task forces for re-work and re-balloting.

<i>Document #</i>	<i>Document Title</i>	<i>TC Chapter Action</i>
5759	Line Item Revisions to SEMI E83-0714, Specification for PGV Mechanical Docking Flange	
Line Item 1	Delete Note 1 and Add Reference to SEMI G95	Passed TC Chapter review with editorial changes
Line Item 2	Add the Reach (d16) Number for G95 (LP for Tape Frame Cassettes) to Table 1	Passed TC Chapter review as balloted

Documents reviewed by the TC Chapter outside of the balloting process:

Note: Per Regulations (December 2014) ¶13.3.3, Auxiliary Information is not published with a Standard or Safety Guideline. It may be authorized for publication as a separate Document by a two-thirds majority of persons voting on the action during a scheduled TC Chapter meeting, and subsequent approval by both the GCS and the ISC A&R SC.

<i>Document #</i>	<i>Document Title</i>	<i>TC Chapter Action</i>
5758	Revision to SEMI AUX023-0614, Overview Guide to SEMI Standards for 450 mm Wafers	Passed TC Chapter review

Table 4 Authorized Activities

<i>#</i>	<i>When</i>	<i>SC/TF/WG</i>	<i>Details</i>
5817	SNARF	Global PIC Maintenance TF	Revision to SEMI E72-0600 (Reapproved 0305), Specification and Guide for 300 mm Equipment Footprint, Height, and Weight with title change to: Specification and Guide for Equipment Footprint, Height, and Weight

Note: SNARFs and TFOFs are available for review on the SEMI Web site at:

<http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARF>

Table 5 Authorized Ballots

None.

Table 6 New Action Items

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
2014Nov#01	Michael Tran	To send Larry Hartsough (U.A. Associates) SEMI E21 and SEMI E22 for his five year reviews.

Table 7 Previous Meeting Actions Items

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>	<i>Status</i>
2014Jul#01	Michael Tran	To send Stefan Radloff the revised AUX023-0614 for review.	CLOSED
2014Jul#02	Alan Crockett	To submit a TFOF for a SEMI E72 Revision TF and a SNARF to revise SEMI E72	CLOSED
2014Jul#03	Alan Crockett	To talk to Chris Sanders (DPS Engineering) to join the proposed SEMI E72 Revision TF.	CLOSED
2014Jul#04	Michael Tran	To follow up with the Europe PI&C TC Chapter and Jan Rothe (GLOBALFOUNDRIES) for the five year review status of SEMI E48.	CLOSED
2014Jul#05	Jan Rothe	To draft a SNARF to revise SEMI E84 for error handling and follow up with the Japan PI&C TC chapter meeting.	OPEN

1 Welcome, Reminders, and Introductions

1.1 Matt Fuller (Entegris) called the meeting to order at 9:10 AM. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves.

Attachment: 01, SEMI Standards Required Meeting Elements

2 Review of Previous Meeting Minutes

2.1 The TC Chapter reviewed the minutes of the previous meeting. Kenji Yamageta's company was misspelled as 'Daifaku.' The previous meeting minutes will be amended to correct his company name to 'Daifuku.'

Motion: To approve the previous meeting minutes as amended.

By / 2nd: Alan Crockett (Consultant) / Shoji Komatsu (Acteon Corporation)

Discussion: None.

Vote: 7-0 in favor. Motion passed.

Attachment: 02, N.A. PIC TC Chapter Meeting Minutes West 2014 (Amended)

3 Liaison Reports

3.1 *Europe Equipment Automation (PI&C) TC Chapter*

3.1.1 Michael Tran (SEMI N.A.) reported for the Europe TC chapter. The key items were as follows:

- Europe Equipment Automation (PI&C) TC Chapter Co-chairs:
 - Alfred Honold (InReCon)
 - Frank Petzold (Trustec)
- Meeting Information
 - Last Meeting: Oct 8, 2014 – SEMICON Europa 2014 in Grenoble, France
 - Next Meeting: Oct 7, 2015 – SEMICON Europa 2015 in Dresden, Germany
- International Reticle SMIF Pod & Loadport Interoperability TF
 - Leadership Change
 - Astrid Gettel (Globalfoundries) stepped down as TF co-leader
 - Jan Rothe (Globalfoundries) is the new TF co-leader replacing Astrid Gettel
- Revision of SEMI E48 (Specification for SMIF Indexer Volume Requirement) TF
 - Updates
 - The TF was disbanded at the last meeting (October 8, 2014)
 - Europe Equipment Automation (PI&C) TC Chapter will not renew efforts to review SEMI E48
 - SEMI E48 will be allowed to go inactive unless another region volunteers to review it
- SEMI Europe contact: Andrea Busch (abusch@semi.org)

Discussion: None.

Attachment: 03, Europe Equipment Automation (PI&C) TC Chapter Report (Fall 2014)

3.2 *Japan Physical Interfaces & Carriers TC Chapter*

3.2.1 Tsuyoshi Nagashima (Miraial) reported for the Japan Physical Interfaces & Carriers TC Chapter. The key items were as follows:

- Leadership changes:

- Shoji Komatsu (Acteion) replacing Takao Nojima who stepped down
- Meeting information
 - Last meeting
 - Japan Fall 2014 Meetings – September 12, 2014 at SEMI Japan in Tokyo
 - Next meeting
 - Japan Winter 2014 Meetings – December 04, 2014 at SEMI Japan in Tokyo
- Japan Physical Interfaces & Carriers Task Force reports
 - 450 mm AMHS Task Force
 - Doc. 5524, Revision to SEMI E156-0710, *Mechanical Specification for 450 mm AMHS Stocker to Transport Interface, with title change to Mechanical Interface Specification for 450 mm AMHS Stocker to Transport Equipment*
 - Currently balloted for Cycle 7-2014
 - Doc. 5632, New Standard: “Specification for Signal Tower for 450mm AMHS”
 - The activity was withdrawn until further notice.
 - Fiducial Mark Interoperability Task Force
 - Discussed Document #5752, *Revision of SEMI T7-0303 (Reapproved 0709), Specification for Back Surface Marking of Double-Side Polished Wafers with a Two-Dimensional Matrix Code Symbol*
 - International 450 mm Physical Interfaces & Carriers Task Force / International Process Module Physical Interface (IPPI) TF
 - See §5.1 of these minutes.
 - International Reticle SMIF Pod and LP Interoperability TF
 - The TF discussed the possibility of adding purge locations to the SMIF documents as stated in the TF charter.
- SEMI Japan contact: Chie Yanagisawa (cyanagisawa@semi.org)

Discussion: None.

Attachment: 04, Japan Physical Interfaces & Carriers TC Chapter Report (Fall 2014)

3.3 North America Standards Staff Report

3.3.1 Michael Tran (SEMI N.A.) gave the NA Standards Staff Report. The key items were as follows:

- Remaining SEMI Global Events in 2014
 - International Technology Partners Conference (ITPC)
 - November 9-12 in Big Island, Hawaii
 - Collaborative Alliance for Semiconductor Test (CAST) Workshop: Implementing Next Generation Data Logging
 - November 12-13 in San Jose, California

- SEMI South America Semiconductor Strategy Summit
 - November 18-20 in Buenos Aires, Argentina
- SEMICON Japan
 - December 3-5 in Tokyo
- Early SEMI Global Events in 2015
 - Industry Strategy Symposium
 - January 11-14 in Half Moon Bay, California
 - European 3D TSV Summit
 - January 19-21 in Grenoble, France
 - SEMICON Korea and LED Korea
 - February 4-6 in Seoul
 - ISS Europe
 - February 22-24 in Amsterdam, Netherlands
 - SEMICON China and FPD China
 - March 17-19 in Shanghai
 - LED Taiwan
 - March 25-28 in Taipei
- SEMI Standards Publications Stats
 - July 2014 – October 2014
 - New Standards: 8
 - Revised Standards: 29
 - Reapproved Standards: 2
 - Withdrawn Standards: 2
 - Total SEMI Standards in portfolio: 917
 - Includes 108 Inactive Standards
- Upcoming NA Standards Meetings in 2015
 - NA Standards Spring 2015 Meetings
 - (Tentative) March 30 – April 2 at SEMI HQ in San Jose, California
 - NA Compound Semiconductor Materials TC Chapter Meeting at CS MANTECH 2015
 - (Tentative) May 20 in Scottsdale, Arizona
 - NA Standards Meetings at SEMICON West 2015
 - (Tentative) July 13-16 in San Francisco, California
- SEMI NA Standards staff contact: Michael Tran, mtran@semi.org

Discussion: None.

Attachment: 05, N.A. Standards Staff Report (Fall 2014)

4 Ballot Review

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

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

Failed ballots and line items were returned to the originating task forces for re-work and re-balloting.

Document #	Document Title	TC Chapter Action
5759	Line Item Revisions to SEMI E83-0714, Specification for PGV Mechanical Docking Flange	
Line Item 1	Delete Note 1 and Add Reference to SEMI G95	Passed TC Chapter review with editorial changes
Line Item 2	Add the Reach (d16) Number for G95 (LP for Tape Frame Cassettes) to Table 1	Passed TC Chapter review as balloted

Motion: Line item 1 of Document 5759 passed TC Chapter review with editorial changes and will be forwarded to the A&R SC for procedural review.

By / 2nd: Larry Hartsough (U.A. Associates) / Supika Mashiro (Tokyo Electron)

Discussion: None.

Vote: 6-0 in favor. Motion passed.

Motion: Line item 2 of Document 5759 passed TC Chapter review as balloted and will be forwarded to the A&R SC for procedural review.

By / 2nd: Larry Hartsough (U.A. Associates) / Supika Mashiro (Tokyo Electron)

Discussion: None.

Vote: 6-0 in favor. Motion passed.

Attachment: 06, A&R SC Procedural Review for Document #5759

5 Subcommittee & Task Force Reports

5.1 Joint International 450 mm Physical Interfaces & Carriers Task Force (450 mm IPIC TF) / International Process Module Physical Interface Task Force (IPPI TF)

5.1.1 Shoji Komatsu (Acteon Corporation) reported for the Task Force. Of note:

- The TF reviewed the ballot results of Doc. 5759 (PGV Docking Flange)
 - Line item 1 was superclean, but editorial change made to cite SEMI G95 (450mm Tape Frame Load Port) in the document and to reference SEMI E162 (450 mm FOSB)
- Interoperability Test Group (ITG) response to G450C issues
 - G450C has issues related to the door closing of the carriers
 - ITG performed tests with Multi-Application Carriers and Loadports from various companies
 - ITG is planning to share a more detailed report at SEMICON Japan 2014

Attachment: 07, Joint 450 mm IPIC TF and IPPI TF Report (Fall 2014)

5.2 International Process Module Physical Interface Task Force (IPPI TF)

5.2.1 Supika Mashiro (Tokyo Electron) reported for the IPPI Task Force. There were no new updates.

5.3 International and N.A. 450 mm Shipping Box Task Force

5.3.1 Tom Quinn (Intel) reported for the International and N.A. 450 mm Shipping Box Task Force. Of note:

5.4 The TF discussed the draft of Document 5069B (450 mm Wafer Shipping System):

- The TF to decide on consistent use of the term “450 FOSB” throughout the document and if there’s need to use the phrase “Wafer Shipping Box” in Paragraph 7.1.8.
 - There is still disagreement for the Related Information 2 that most of the items there belong in SEMI M80 (450mm FOSB).
 - The TF recommendation is to include those items into the Related Information of M80 in future (perhaps by committee approval).
- The TF suggested moving the item regarding automatic bagging (currently in Related Information 2) to Appendix 2.

Attachment: 08, International and N.A. 450mm Shipping Box Task Force Report (Fall 2014)

5.5 Global PIC Maintenance Task Force

5.5.1 Larry Hartsough (U.A. Associates), Alan Crockett (Consultant) and Stefan Radloff (Intel) reported for the Global PIC Maintenance Task Force. Of note:

- The TF discussed Document 5817, Revision to SEMI E72, *with title change to: Specification and Guide for Equipment Footprint, Height, and Weight*
 - Next steps for Document 5817:
 - Update the main body for clarification
 - Make minor editorial changes
 - Update the document to the current SEMI Standards Style Manual format.
 - The requirements and values in SEMI E72 will NOT change
- Update for Revision to SEMI E84 (Specification for Enhanced Carrier Handoff Parallel I/O Interface)
 - Jan Rothe (Globalfoundries) identified problems regarding the error signaling of AMHS
 - There are proposed solutions to the problem and additional discussion is needed
 - The TF will ask for inputs from AMHS suppliers and members at the next meeting
- SEMI E110-1102 (Reapproved 0709) (Guideline for Indicator Placement Zone and Switch Placement Volume of Load Port Operation Interface for 300 mm Load Ports)
 - The TF recommend making SEMI E110 inactive at the next Japan PIC TC Chapter at SEMICON Japan 2014

Attachment: 09, Global PIC Maintenance TF Report (Fall 2014)

5.6 International Reticle SMIF Pods and Load Ports Interoperability Task Force

5.6.1 Michael Tran (SEMI NA) reported for the Task Force. There have not been any new updates since the TF sent out an online survey for Purge Ports locations on June 25, 2014. Another survey was sent out with a deadline of August 15, 2014. The results of that survey will be reviewed the next time the TF meets.

5.7 EUV Reticle Handling Task Force

5.7.1 There was no report given.

5.8 N.A. 450 mm Automated Test Die Prep Task Force

5.8.1 Stefan Radloff (Intel) reported for the N.A. 450 mm Automated Test Die Prep Task Force. Stefan said most of the tape frame activities have been in Japan in the Assembly & Packaging committee. There have not been new updates from Japan except for some tape frame related standards due for five year reviews.

6 Old Business

6.1 Documents Due for Five Year Reviews Updates

#	Details	Status
SEMI E84-1109	Specification for Enhanced Carrier Handoff Parallel I/O Interface	Jan Rothe (GLOBALFOUNDRIES) and the IPIC TF reviewing. See §5.1 of these minutes.
SEMI E92-0302E (Reapproved 0709)	Specification for 300 mm Light Weight and Compact Box Opener/Loader to Tool-Interoperability Standard (Bolts/Light)	Japan PI&C TC Chapter to review. Currently balloted in Cycle 7-2014
SEMI E110-1102 (Reapproved 0709)	Guideline for Indicator Placement Zone and Switch Placement Volume of Load Port Operation Interface for 300 mm Load Ports	Japan PI&C TC Chapter to review.
SEMI E22-0697 (Reapproved 0309)	Cluster Tool Module Interface: Transport Module End Effector Exclusion Volume Standard	Larry Hartsough (U.A. Associates) to review.
SEMI E21-94 (Reapproved 0309)	Cluster Tool Module Interface: Mechanical Interface and Wafer Transport Standard	Larry Hartsough (U.A. Associates) to review.
SEMI E48-1101 (Reapproved 1107)	Specification for SMIF Indexer Volume Requirement	Document allowed to be inactive by the Europe PI&C TC Chapter. See §3.1 of these minutes.
SEMI E72-0600 (Reapproved 0305)	Specification and Guide for 300 mm Equipment Footprint, Height, and Weight	Alan Crockett and Stefan Radloff reviewing. SNARF 5817 was approved. See §7.1 of these minutes.

Action Item: 2014Nov#01, Michael Tran to send Larry Hartsough (U.A. Associates) SEMI E21 and SEMI E22 for his five year reviews.

7 New Business

7.1 Documents reviewed by the TC Chapter outside of the balloting process

Note: Auxiliary Information is not published with a Standard or Safety Guideline. It may be authorized for publication as a separate Document by a two-thirds majority of persons voting on the action during a scheduled TC Chapter meeting, and subsequent approval by both the GCS and the ISC A&R SC.

Document #	Document Title	TC Chapter Action
5758	Revision to SEMI AUX023-0614, Overview Guide to SEMI Standards for 450 mm Wafers	Passed TC Chapter review

Motion: Document 5758 passed TC Chapter review as balloted and will be forwarded to the A&R SC for procedural review.

By / 2nd: Shoji Komatsu (Acteon Corporation) / Alan Crockett (Consultant)

Discussion: None.

Vote: 8-0 in favor. Motion passed.

Attachment: 10, A&R SC Procedural Review for Document #5758

7.2 New SNARF

7.2.1 The following SNARF was submitted for the TC Chapter's approval:

#	When	SC/TF/WG	Details
5817	SNARF	Global PIC Maintenance TF	Revision to SEMI E72-0600 (Reapproved 0305), Specification and Guide for 300 mm Equipment Footprint, Height, and Weight with title change to: Specification and Guide for Equipment Footprint, Height, and Weight

Note: SNARFs and TFOFs are available for review on the SEMI Web site at:

<http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARF>

Motion: To approve SNARF #5817.

By / 2nd: Larry Hartsough (U.A. Associates) / Alan Crockett (Consultant)

Discussion: None.

Vote: 5-0 in favor. Motion passed.

8 Action Item Review

8.1 Open Action Items

8.1.1 Michael Tran (SEMI N.A.) reviewed the open action items. These can be found in the Open Action Items table at the beginning of these minutes.

8.2 New Action Items

8.2.1 Michael Tran (SEMI N.A.) reviewed the new action items. These can be found in the New Action Items table at the beginning of these minutes.

9 Next Meeting and Adjournment

9.1 The next N.A. Physical Interfaces & Carriers Standards Meetings are tentatively scheduled for March 30-April 1, 2015 at Intel Headquarters (Robert Noyce Building) in Santa Clara, California in conjunction with the NA Standards Spring 2015 Meetings.

Tentative Schedule:

Monday, March 30*

- EUV Reticle Handling TF (TBD)
- Int'l Reticle SMIF Pods and Loadports Interoperability TF (TBD)

Tuesday, March 31*

- Joint Int'l 450 mm PIC TF / Int'l Process Module Physical Interface TF (10:00 AM – 12:00 PM)
- PIC Global Maintenance TF (1:00 PM – 3:00 PM)
- Int'l 450 mm Shipping Box TF (3:00 PM – 5:00 PM)

Wednesday, April 1*

- N.A. Physical Interfaces & Carriers TC Chapter (9:00 AM – 12:00 PM Noon)

*All times are Pacific Time. Times and dates are subject to change without notice.

For meeting details, registration, the latest schedule, and travel information please visit

<http://www.semi.org/node/54226>

9.2 Having no further business, the N.A. Physical Interfaces & Carriers TC Chapter meeting held at Intel Headquarters (Robert Noyce Building) on November 05, 2014 was adjourned at 11:09 AM.

Respectfully submitted by:

Michael Tran
Senior Standards Engineer
SEMI North America
Phone: 1-408-943-7019
Email: mtran@semi.org

Minutes approved by:

Matt Fuller (Entegris), Co-chair	February 10, 2015
Stefan Radloff (Intel), Co-chair	March 22, 2015

Table 8 Index of Available Attachments #1

#	Title	#	Title
01	SEMI Standards Required Meeting Elements	06	A&R SC Procedural Review for Document #5759
02	N.A. PIC TC Chapter Meeting Minutes (Amended - West 2014)	07	Joint 450 mm IPIC TF and IPPI TF Report (Fall 2014)
03	Europe Equipment Automation (PI&C) TC Chapter Report (Fall 2014)	08	International and N.A. 450mm Shipping Box Task Force Report (Fall 2014)
04	Japan Physical Interfaces & Carriers TC Chapter Report (Fall 2014)	09	Global PIC Maintenance TF Report (Fall 2014)
05	N.A. Standards Staff Report (Fall 2014)	10	A&R SC Procedural Review for Document #5758

#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 Michael Tran at the contact information above.