



Physical Interfaces & Carriers North America TC Chapter

Meeting Summary and Minutes

SEMICON West Standards Meetings 2024

Wednesday, July 10, 09:30 – 12:30 Pacific

Moscone Center, San Francisco, California, and via Official Virtual TC Chapter Meeting (OVTCCM)

TC Chapter Announcements

Next TC Chapter Meeting

NA Fall Meetings 2024

Wednesday, November 6, 09:00 – 12:00 Noon Pacific

SEMI Global Headquarters, Milpitas, California/USA

Table 1 Meeting Attendees

Italics indicate virtual participants

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

SEMI Staff: Laura Nguyen

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
Acteon NEXT LLC	Komatsu	Shoji	<i>LK Semiconductor Consulting Services</i>	<i>Kwakman</i>	<i>Laurens</i>
<i>Brooks Automation</i>	<i>Babbs</i>	<i>Daniel</i>	<i>Lasertec Corporation</i>	<i>Honda</i>	<i>Yuki</i>
<i>Canon</i>	<i>Jones</i>	<i>Chris</i>	Marubeni Plax Corporation	Igeta	Luke
Entegris	Fuller	Matthew	Samsung	Jinhyeok	Choi
Entegris	Strickhouser	Chris	Sinfonia Technology	Taniyama	Yasushi
Entegris	Wang	Huaping	Sinfonia Technology	Taisuke	Matsukubo
Gudeng Precision	Chen	Yu (Amber)	Sinfonia Technology	Umezu	Takafumi
Gudeng Precision	Lin	Kevin	Tokyo Electron Limited	Mashiro	Supika
<i>Intel</i>	<i>Jung</i>	<i>Melvin</i>	Tokyo Electron Limited	Tomita	Yugo
Intel	Radloff	Stefan	UA Associates	Hartsough	Larry
<i>Lam Research</i>	<i>Gould</i>	<i>Richard</i>	SEMI	Nguyen	Laura

Table 2 Leadership Changes

<i>WG/TF/SC/TC Name</i>	<i>Previous Leader(s)</i>	<i>New Leader(s)</i>
“6 x12 inch” Reticle Carrier and Load Port Task Force [<i>New</i>]		Huaping Wang (Entegris) Elson Tu (Gudeng) Daniel Babbs (Brooks Automation)

Table 3 TC Chapter Structure Changes

<i>Previous WG/TF/SC Name</i>	<i>New WG/TF/SC Name or Status Change</i>
—	“6 x12 inch” Reticle Carrier and Load Port Task Force [<i>New</i>]

Table 4 Ballot Results

<i>Document #</i>	<i>Document Title</i>	<i>TC Chapter Action</i>
7195	Revision to SEMI E72-1016, Specification and Guide for Equipment Footprint, Height, and Weight	Failed

Table 5 Ballot Results

None

#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 6 Activities Approved by the GCS between meetings of the TC Chapter

None

Table 7 Authorized Activities

Listing of all revised or new SNARF(s) and TFOF(s) approved by the Originating TC Chapter.

<i>#</i>	<i>Type</i>	<i>SC/TF/WG</i>	<i>Details</i>
-	TFOF	“6 x12 inch” Reticle Carrier and Load Port TF	Approved TFOF for the “6 x12 inch” Reticle Carrier and Load Port Task Force.

NOTE 1: SNARFs and TFOFs are available for review on the SEMI Web site at: <http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARF>

Table 8 Authorized Ballots

Listing of documents authorized by the Originating TC Chapter for Letter Ballot.

<i>#</i>	<i>When</i>	<i>TF</i>	<i>Details</i>
6896	Cycle 6 or 7-2024	FFF TF	New Standard: Specification for 300 mm Frame Carrier FOUF
7195A	Cycle 7,8,9 2024 or 1-2025	SEMI E72 Revision TF	Revision to SEMI E72-1016, Specification and Guide for Equipment Footprint, Height, and Weight

Table 9 SNARF(s) Granted a One-Year Extension

<i>#</i>	<i>TF</i>	<i>Title</i>	<i>Expiration Date</i>
6832	Electron Microscopy Workflow TF	New Standard, Specification for Shipping Container for Transport of Transmission Electron Microscope (TEM) Lamella Carriers (LC) from LC-supplier to LC-end user	Summer 2025

NOTE 1: If the Standards Document Development Project is found to be continuing, but cannot be completed within the current project period, the TC Chapter may grant a one-year extension at a time, as many times as necessary. [Regulations § 8.3]

Table 10 SNARF(s) Cancelled

None



Table 11 Standard(s) to receive Inactive Status

<i>Standard Designation</i>	<i>Title</i>
SEMI E152-0619	Specification for Mechanical Features of EUV Pod for 150 mm EUVL Reticles
SEMI E158-0819	Specification for Mechanical Features of Fab Wafer Carrier Used to Transport and Store 450 mm Wafers (450 FOUP) and Kinematic Coupling
SEMI E159-0819	Specification for Mechanical Features of Multi Application Carrier (MAC) Used to Transport and Ship 450 mm Wafers
SEMI E154-0819	Specification for Mechanical Features of 450 mm Load Port
SEMI E166-0814 (Reapproved 0220)	Specification for Review 450 mm Cluster Module Interface: Mechanical Interface and Transport Standard

NOTE 1: *Inactive, adj.* — Status of a Standard or Safety Guideline that is not currently supported by the GTC. [Regulations ¶ 4.2.19]

Table 12 New Action Items

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
2024July#01	Laura Nguyen	Feedback to SEMI about Productive Member Slide: some members support tougher/stronger language regarding submitting comments, etc. Completed.
2024July#02	Laura Nguyen	SEMI/Laura to send three SNARFs for TC Member Review followed by GCS. Completed.

Table 13 Previous Meeting Action Items

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
2017April#04	Laura Nguyen	To identify which documents under the global task force, belong to which committees. Ongoing. Unsure how this should be done.
2022Mar#01	Larry Hartsough	Larry to check Five-Year docs for “must”, “shall”, and other PM related items. Ongoing.
2022Mar#02	Laura Nguyen	Laura to check internally to share top formatting examples to TF leaders. Ongoing.
2022July#01	Larry Hartsough	Provide tutorial for Inactive Standards. Ongoing.
2022Nov#01	Larry Hartsough	Put together a slide on how to add other things to consider in the future (such as, how to resolve different types of conflict; ex: SEMI E131 and E15.1 conflict) Ongoing.
2023Nov#01	Laura Nguyen	Laura to connect Loek with Christian to revise SNARF. Ongoing.
2024March#01	SEMI Staff	Create connect@SEMI communities for PIC TFs. Completed.

1 Welcome, Reminders, and Introductions

Matt Fuller (Entegris) called the meeting to order at 09:30. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves.

Attachment: SEMI Standards Required Meetings Elements March 2024

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: By: Shoji Komatsu / Acteon NEXT LLC
Second: Stefan Radloff / Intel

Discussion: None.

Vote: 9-0 in favor. Motion passed.

Attachment: [2024Spring] PIC NA TC Chapter Meeting Minutes

3 Liaison Reports

3.1 Physical Interfaces & Carriers Japan TC Chapter

Laura Nguyen (SEMI HQ) reported for the Physical Interfaces & Carriers Japan TC Chapter. Of note:

Meeting Information

- Last meeting
 - Friday April 12, 13:00-16:00, OVTCCM
- Next Meeting:
 - Friday July 19, 13:00-15:00 JST, OVTCCM & SEMI Japan office [hybrid]

Organization Chart (See attachment)

Ballot Results:

Doc#	Document Title	TC Chapter Action
7170	Line-Item Revision to SEMI E184 -1221E Specification for 300 mm Tape Frame FOUN Load Port	
L1	Addition of E185 Tape Frame FOUN standard to reference section	Pass as balloted
L2	Bias term correction and editorial correction	Pass as balloted
7171	Line-Item Revision to SEMI E185 -1222 Specification for 300 mm Tape Frame FOUN	
L1	Addition of E184 Loadport standard to reference section	Pass as balloted
L2	Correction of z0 calculation mistake	Pass as balloted
L3	Correction of EE Exclusion volume	Pass as balloted
L4	Bias term correction	Pass as balloted

Authorized Activities

#	Type ^{#1}	SC/TF/WG	Details
7170	SNARF	Panel Level Packaging (PLP) Panel FOUN Task Force	Line Item Revision to SEMI E185-1222: Specification for 300 mm Tape Frame FOUN
7171	SNARF	Panel Level Packaging (PLP) Panel FOUN Task Force	Line Item Revision to SEMI E184-1221E: Specification for 300 mm Tape Frame FOUN Load Port
7172	SNARF	Next Gen Assembly / Test Material Handling Task Force	New Standard: Specification for Next Gen Assembly / Test Carrier

Task Force Highlights

Global PIC Standards Maintenance Task Force

- Two ballots are voting in Cycle 2. The ballot adjudication will be at the next committee meeting in April.
- 7170 - Line-Item Revision to SEMI E184 -1221E Specification for 300 mm Tape Frame FOUN Load Port
 - Since the "E185 Tape Frame FOUN" standard has been published, add it to the reference section and correct "Bias term" to the appropriate wording.
 - Line Item 1: Addition of E185 Tape Frame FOUN to reference section
 - Line Item 2: Bias term correction and editorial correction
- 7171 - Line-Item Revision to SEMI E185 -1222 Specification for 300 mm Tape Frame FOUN
 - Since the "E184 Tape Frame FOUN Loadport" standard has been published, add it to the reference section and correct "Bias term" to the appropriate wording. Also, update incorrect dimensions and missing specifications.
 - Line Item 1: Addition of E184 Loadport standard to reference section
 - Line Item 2: Correction of z0 calculation mistake
 - Line Item 3: Correction of EE Exclusion volume



- Line Item 4: Bias term correction

Japan Electron Microscopy Workflow liaison TF

- Documents Under Development
 - 6592, New Standard: Specification for Container for Transport and Storage of Transmission Electron Microscope (TEM) Lamella Carriers within Electron Microscopy Workflows
 - Updates: full set of LCC lid and LC containment specs, redefine side connector specifications, and define missing LCC elements (Lid lock, lid connector, sensor features,..)
 - Ballot draft target is Q3, 2024
 - 6832, New Standard: Specification for Shipping Container for Transport of Transmission Electron Microscope (TEM) Lamella Carriers (LC) from LC-supplier to LC-end user
 - Ongoing

Panel Level Packaging(PLP) Panel FOUNTF

- Revision of E181-0424 and E182-0424 were published.
- Next revision
 1. E181.2(515x510 / 6 Slot) > Discuss adding or changing the first panel height.
 2. E182 > Fixed incorrect figure change in Ballot No.6936
 3. E182 > Discussing the definition of KC pin height and the clearance between Panel FOUNTF and LP

Next Gen Assembly / Test Material Handling TF

- Charter: TF will develop the physical interfaces to help enable additional automation in assembly / test factories.
- Discussed standards structure and plans, and carrier design proposal
- Developing Standards
- Doc. 7172, New Standard: Specification for Next Gen Assembly / Test Carrier

Five-Year Review: None

Staff Contact: Hirofumi Kanno; hkanno@semi.org

Attachment: JA_PIC_Liaison_20240719_R1

3.2 SEMI Staff Report

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

SEMI Global 2024 Calendar of Events

- SEMCON West (July 9-11; San Francisco, CA)
- SEMICON Taiwan (Sept 4-6; Taipei, Taiwan)
- SEMICON India (Sept 11-13; New Delhi, India)
- Energy Taiwan/X Net-Zero Taiwan (Oct 2-4; Taipei, Taiwan)
- SEMICON Europa (Nov 12-15; Munich, Germany)
- SEMICON Japan (December 11-13; Tokyo, Japan)

SEMICON West 2025-2030 ← **NEW!**

- **2025—October 7-9 | Phoenix Convention Center | Phoenix, AZ**
- 2026—October 13-15 | Moscone Center | San Francisco, CA
- **2027—October 12-14 | Phoenix Convention Center | Phoenix, AZ**
- 2028—October 10-12 | Moscone Center | San Francisco, CA



- **2029—October 9-11 | Phoenix Convention Center | Phoenix, AZ**
- 2030—October 29-31 | Moscone Center | San Francisco, CA

Upcoming NA Meetings 2024

- NA Standards Fall Meetings: November 4-7, 2024, at SEMI HQ, Milpitas, California/USA

Upcoming NA Meetings 2025

- NA Standards Winter Meetings: February 24-27, 2025, at SEMI HQ, Milpitas, California/USA
- NA Standards Summer Meetings: June 2-6, 2025 (*tentative*), at SEMI HQ, Milpitas, California/USA
- SEMICON West: Oct 6-9, 2025, at Phoenix Convention Center, Phoenix, Arizona/USA

Critical Dates for SEMI Standards Ballots

- Cycle 6-2024: Ballot Submission Due: July 24/Voting Period: Aug 7 – Sept 6
- Cycle 7-2024: Ballot Submission Due: Aug 27/Voting Period: Sept 10 – Oct 10
- Cycle 8-2024: Ballot Submission Due: Oct 1/Voting Period: Oct 15 – Nov 14
- Cycle 9-2024: Ballot Submission Due: Nov 8/Voting Period: Nov 22 – Dec 23
- Cycle 1-2025: Ballot Submission Due: Dec 17, 2024/Voting Period: Jan 8 – Feb 7
- Cycle 2-2025: Ballot Submission Due: Jan 23/Voting Period: Feb 11 – Mar 13
- Cycle 3-2025: Ballot Submission Due: Mar 5/Voting Period: Mar 19 – Apr 18
- Cycle 4-2025: Ballot Submission Due: Mar 20/Voting Period: Apr 9 – May 9

<https://www.semi.org/en/collaborate/standards/ballots>

Standards Publications Report

<i>Cycle</i>	<i>New</i>	<i>Revised</i>	<i>Reapproved</i>	<i>Withdrawn</i>
March 2024	0	6	8	0
April 2024	1	7	2	0
May 2024	3	7	1	2
June 2024	0	12	1	0

Total in portfolio – 1,088 (includes 342 Inactive Standards)

New Standards

<i>Cycle</i>	<i>Designation</i>	<i>Title</i>	<i>Committee</i>	<i>Region</i>
April 2024	SEMI T25	Specification for ID Marking for Glass Carrier Characteristics of Panel Level Packaging (PLP) Applications	Traceability	JA
May 2024	SEMI E189	Specification for Equipment Management of Consumables and Durables (EMCD)	Information & Control	NA
May 2024	SEMI E189.1	Specification for SECS-II Protocol for Equipment Management of Consumables and Durables (EMCD)	Information & Control	NA
May 2024	SEMI D86	Test Method for Flicker Nuisance of Wide-Visual-Field Displays	FPD - Metrology	TW

The Use of Connect@SEMI for TF Management and Document Development Depository

- Refer to PM § 6.4.5 Operation of TFs
 - Task Forces have one year from 02/20/25 to implement use of Connect@SEMI. (<https://connect.semi.org>)
- Once TFs have implemented use of Connect@SEMI, they shall use it to:
 - Maintain the TF member roster up to date.
 - Share the working drafts.
 - The default format for working Draft Document sharing shall be Adobe Acrobat PDF.



- Distribute the Draft Document at least one week before ballot submission to SEMI.
- All existing TFs have been set up in Connect@SEMI as Communities with the TF leaders assigned community admin and moderator capabilities
- Training materials for TF leaders and members (users) are available at
 - <https://www.semi.org/standards>
 - Under Standards Developer Resources → Collaboration Tools (scroll to the bottom)

Productive Committee Member Guidelines {refer to attachment for slide}

- At the NA Spring 2024 meetings, the NARSC agreed to distribute a slide on Productive Committee Member Guidelines for use among the various TC chapters
- While not part of the Required Meeting Elements, TC Chapters are encouraged to present this slide to encourage effective standards development while being considerate of the volunteer nature of the Program.
- The Productive Committee Member Guidelines will be offered to TC Chapters starting with the SEMICON West 2024 meetings and subsequently to the other regions.

SEMIViews 4.0 – Coming Soon! {refer to attachment graphics}

- New or improved features include:
 - Improved search functionality and navigation panel
 - New custom Library feature
 - User defined shortcuts using Collections, Favorites, and Bookmarks
 - Improvements for account admin functions
 - A more dynamic landing page with feeds on new & revised Standards, upcoming meetings & events as well as help & resource center
 - Refreshed user interface
- In progress
 - Incorporating feedback from customer/user beta testing
 - Beta testing with select SEMIViews account admins
 - New SEMIViews platform planned for launch on August 5, 2024.

Five-Year Review: All sent to Inactive Status in Table 11 above.

Action Item: #01, Laura Nguyen; Feedback to SEMI about Productive Member Slide: some members support tougher/stronger language regarding submitting comments, etc.

Attachment: Staff Report July 2024 v5_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 file name for each balloted document is provided under each ballot review section below.

4.1 Document # 7195 — Revision to SEMI E72-1016, Specification and Guide for Equipment Footprint, Height, and Weight

- The committee found the negative related and technically persuasive. The ballot **failed** and returned to the task force for re-work and re-ballot in the next cycle if ready.

Motion: To find Screen Negative- Part 1 related and persuasive.

By / 2nd: By: Supika Mashiro / Tokyo Electron Ltd.
Second: Shoji Komatsu / Acteon NEXT LLC

Discussion: None.

Vote: 11-0 in favor. Motion passed.



Motion: This Document failed TC Chapter review and will be returned to the TF for rework.
By / 2nd: By: Supika Mashiro / Tokyo Electron Ltd.
Second: Shoji Komatsu / Acteon NEXT LLC
Discussion: None.
Vote: 14-0 in favor. Motion passed.
Attachment: E72Revision TF Report to NAPIC TC_20240710

5 Subcommittee and Task Force Reports

5.1 SEMI E72 Revision Task Force

Supika Mashiro (TEL) reported for this Task Force. Of note:

Agenda

- TF roster and meeting attendance
- Activities from NA Spring meeting 24' and today
- Results of Letter Ballot 7195
- Next Actions

Activities from Spring meeting and today

- The TF finished with disposition of every negative/comment received on the Reapproval ballot (Doc.#6834) and reflected to the CoC Table.
- Standard draft #7195 was submitted to cycle 4

Ballot result and TF recommendation

- TF would like to get permission of submitting Doc.#7195A after resolving all the Negatives/Comments/ other issues on Doc.#7195

On behalf of Supika Mashiro (TEL):

Motion: Authorize the Document for Letter Ballot 7195A: Revision to SEMI E72-1016, Specification and Guide for Equipment Footprint, Height, and Weight, in Cycle 7, 8, 9-2024, or 1-2025.
By / 2nd: By: Supika Mashiro / Tokyo Electron Ltd.
Second: Shoji Komatsu / Acteon NEXT LLC
Discussion: None.
Vote: 14-0 in favor. Motion passed.

Next Actions

- Plan of TF meetings
- Bi-weekly meeting starting 7/22 16:00-17:00 Monday (PDT) is planed until we finish with dispositioning Negatives / Comments and become ready for next Ballot.

Attachment: E72Revision TF Report to NAPIC TC_20240710

5.2 Film Frame FOUP Task Force

Stefan Radloff (Intel) reported for this Task Force. Of note:

FFF TF Status Update, SEMICON West

- Rev 0 full draft of ballot complete –TF review ongoing (**Ballot is done!**)



- Document includes 2 different FWH options –we are ~3-4 years too late and constrained by non-standard products in use
- Goal = ready for ballot @ SemiconWest
 - Ready! TF voted to request approval from the PIC to ballot
- Future: FFF Loadport/ BOLTS –very minor adjustments to existing standards
 - Advice needed: can we include / reuse figures from E15.1, E47.1, E62 in the new standard? e.g. “the FFF LP is the same as E15.1, except for the dim in the figure called out in blue...”

Motion

- TF requests PIC approval to ballot SEMI Draft Document 6896, Specification for 300m Film Frame FOU (FFF) in 2024 cycle 6 or 7 (cycle 6 preferred, but depending on document readiness)

On behalf of Stefan Radloff (Intel):

Motion: Authorize the Document for Letter Ballot 6896, New Standard: Specification for 300 mm Frame Carrier FOU in Cycle 6 or 7, 2024

By / 2nd: By: Stefan Radloff / Intel
Second: Shoji Komatsu / Acteon NEXT LLC

Discussion: None.

Vote: 12-0 in favor. Motion passed.

Discussion on copying figures from E15.1 into a new standard

- Can you legally create a new standard and reference the figure, except for ‘the next thing we’re about to tell you in the document’? For example, take these parts and apply it to this new standard document
- Alternative? Recreate the figure
- Can we reuse a picture but use different colors to show the change
 - Skeptical to do this
 - E152 is an example of this though
- Nothing specific in the Regs that say ‘no you can’t do it this way’
- Will report back to TF and discuss other alternatives

Attachment: FFF update semicon west 24 update

5.3 JA Next Gen Assembly / Test Material Handling Task Force

Stefan Radloff (Intel) reported for this Task Force. Of note:

SATAS

- Semiconductor Assembly Test Automation and Standardization Research Association (SATAS) announced 7 May 2024
 - <https://finance.yahoo.com/news/intels-venture-japan-pioneering-automation-203605520.html>
 - <https://satas-cip.jp/#>
 - SATAS supported by Japanese Ministry of Economy, Trade and Industry
- SEMI standards developed by the NGAT TF will be initially implemented in a SATAS pilot line

JEDEC Large Tray Update

- Large tray design is ~complete
- Tray form factor: → 258mm x 537.6mm (530mm + end tabs)



- Some typical JEDEC features updated to enable simpler / more efficient tray handling
- Final standard development is underway – contact Stefan for a draft of the ballot
- Plan to request ballot approval end of August at Montreal JEDEC JC-11 committee meeting

Carrier

- Focus = develop a E181 based carrier that contains 2 stacks of large JEDEC trays.
- Critical dimensions (internal) under development

Attachment: FFF update semicon west 24 update

5.4 Electron Microscopy Workflow Task Force

Laurens Kwakman (LK Semiconductor Consulting) reported for this Task Force. Of note *{See attachment for images}*:

Agenda

- Activity update since March 2024
- Outcome Focus Team Meetings
- Planning 2024

Activity Update

- Since March 2024, the Taskforce has continued to advance the LCC specifications through focus team and taskforce meetings
 - Five focus team meetings and three Taskforce meetings were organized in these last three months. The latest version of Doc6592 V1.0 has been prepared and its content is currently under reviewed at Taskforce level. Some critical specs have been added: LCC lid design, LC containment features, alphanumeric ID mark details.
 - other elements (magnetic lid locking, open/close sensor features and robot connecting interfaces) still need to be detailed which will take until end Q3 2024...
 - Activities progressed as planned
- Progress made in March – July 2024 period
 - In Q2 2024, the Taskforce has concluded on the Lid design details, and has established dimensional specifications as well as tolerance specifications that will ensure a functional, operational LCC, whether produced in plastic or in metal.
 - A magnetic lid locking design has been agreed upon.
 - A human readable alphanumeric ID mark has been defined and an alternative location has been chosen (the rear face of the side connector)
- Lid designs and LC containment features have been finalized *{refer to attachment for images}*
 - LC containment specs (grooves & ridges)
 - LCC lid specs
- A definition for the human-readable ID mark has been added and a decision was taken to duplicate the 2D Dot matrix ID mark next to it at the rear-face of the side connector *{refer attachment for images}*
- Different methods for lid locking of metal and plastic LCC have been explored *{refer attachment for images}*
 - Magnetic lid locking for metal and plastic LCCs
 - Friction based mechanical lid locking for plastic LCCs



- Summary and Planning 2024 activities (Aiming at a LCC Standards document ready for Ballot before end Q4 2024)
 - Doc 6592 has been updated to V1.0 and approved by TF members
 - We have found solutions for lid-locking by use of 4 magnet sets
 - The LCC Standard will be defined in material neutral terms
 - Update Doc 6592 with a full set of LCC lid and LC containment specs: Q2, 2024
 - Redefine the side connector specifications and update Doc 6592 accordingly: Q2, 2024
 - Define missing LCC elements (Lid lock, lid connector, sensor features,..) Q3, 2024
 - Create final draft for Ballot, review draft at Taskforce level Q3, 2024
 - Issue first final version of Doc.6592 for a ballot cycle in Q1 2025 Q4, 2024
- Extension of SNARF 6832 (Validity of SNARF 6832 ends July 2024)

On behalf of Laurens Kwakman (LK Semiconductor Consulting):

Motion: Approve a 1 year extension of the project period for the SNARF 6832, New Standard: Specification for Shipping Container for Transport of Transmission Electron Microscope (TEM) Lamella Carriers (LC) from LC-supplier to LC-end user

By / 2nd: By: laurens kwakman / LK Semiconductors Consulting Services
Second: Larry Hartsough / U.A. Associates

Discussion: None

Vote: 10-0 in favor. Motion passed.

- Next Meetings
 - Next TF meeting: Date: Wednesday, August 7, 2024, Time: 02.30 – 04.00 pm (PDT USA)
 - Agenda: Updates on new design proposals for outstanding LCC features (focus team activity updates), **Doc 6592 revision update**
 - Next Focus team meeting: Date: Wednesday, August 7, 2024, Time: 02.30 – 04.00 pm (PDT USA)
 - Agenda: discuss & finalize new specifications generated and proposed by HTT , JEOL and LK/TFS (side connector).

Attachment: SEMI EM TF -PIC Update 27 March 2024

5.5 *Integrated Workflows in Failure Analysis TF (have not met)*

- Update: currently aligning JSON activity with Information & Control NA Chapter before kickoff meeting is planned.

5.6 *Global PIC Maintenance Task Force*

- TF Status
 - JA Leader: Shoji Komatsu – Acteon NEXT
 - NA Leader: Larry Hartsough – UA Associates
 - Current NA activity on 5-year review
 - E72 (Equipment Footprint, Hgt & Wgt): Active E72 TF working on Major Revision
 - Current JA activity on 5-year review
- Results for Current NA Letter Ballots
 - No current MTF ballots



- Standards for Next 5-Year Review
 - SEMI E152-0619 Specification for Mechanical Features of EUV Pod for 150 mm EUVL Reticles
 - SEMI E158-0819 Specification for Mechanical Features of Fab Wafer Carrier Used to Transport and Store 450 mm Wafers (450 FOUP) and Kinematic Coupling
 - SEMI E159-0819 Specification for Mechanical Features of Multi Application Carrier (MAC) Used to Transport and Ship 450 mm Wafers
 - SEMI E154-0819 Specification for Mechanical Features of 450 mm Load Port
 - SEMI E166-0814 (Reapp 0220) Specification for Review 450 mm Cluster Module Interface: Mechanical Interface and Transport Standard
- Proposal: let all go Inactive

On behalf of Larry Hartsough (UA Associates):

Motion: Take no action on the following standards to Inactive Status:
SEMI E152-0619 Specification for Mechanical Features of EUV Pod for 150 mm EUVL Reticles
SEMI E158-0819 Specification for Mechanical Features of Fab Wafer Carrier Used to Transport and Store 450 mm Wafers (450 FOUP) and Kinematic Coupling
SEMI E159-0819 Specification for Mechanical Features of Multi Application Carrier (MAC) Used to Transport and Ship 450 mm Wafers
SEMI E154-0819 Specification for Mechanical Features of 450 mm Load Port
SEMI E166-0814 (Reapp 0220) Specification for Review 450 mm Cluster Module Interface: Mechanical Interface and Transport Standard

By / 2nd: By: Larry Hartsough / U.A. Associates
Second: Shoji Komatsu / Acteon NEXT LLC

Discussion: None

Vote: 12-0 in favor. Motion passed.

Attachment: PIC MTF Report July 2024

6 Old Business

None

7 New Business

7.1 6x12 EUV Reticle Carrier and LP (TFOF and SNARFs)

Huaping Wang (Entegris) brought this to the Committee. Of note:

- The Committee reviewed the TFOF and SNARFs

Motion: Approve the TFOF for the
“6 x12 inch” Reticle Carrier and Load Port Task Force

By / 2nd: By: Huaping Wang / Entegris, Inc.
Second: Daniel Babbs / Brooks Automation, Inc.

Discussion: Comment: inch is not used internationally, mL
Result → added quotes to TF name

Vote: 12-0 in favor. Motion passed.

Action Item: #01, Laura Nguyen; Feedback to SEMI about Productive Member Slide: some members support tougher/stronger language regarding submitting comments, etc.



Attachment: TFOF_ 6x12 Carrier and Load port Task Force July 05 2024_atm

Attachment: SNARF_6x12 EUVL Load Port July 3_DRAFT_atm

Attachment: SNARF_6x12 EUVL pod July 5_DRAFT_atm

Attachment: SNARF_6x12 RSP July 05_DRAFT_atm

8 Action Item Review

8.1 New Action Items are noted in Table 11. Previous action items are noted in Table 12 in 'red' and for recent updates in 'blue'. There is no further business.

9 Next Meeting and Adjournment

9.1 The next meeting is tentatively scheduled for the week of November 4-7, in conjunction with SEMI Standards NA Fall Meetings 2024. Schedule details TBD. Please check www.semi.org/standards for updates.

Tentative Schedule:

- TBD, Next Gen Assembly / Test Material Handling (NGAT) Japan TF
(will meet virtually the week prior?)
- Integrated Workflows in Failure Analysis TF ?

Monday, November 4

- 16:00-17:30, SEMI E72 Revision TF

Tuesday, November 5

- 13:00-15:00, Film Frame FOUP (FFF) TF
- 15:00-17:00, "6 x12 inch" Reticle Carrier and Load Port TF
- 15:00-16:00, Electron Microscopy Workflow TF

Wednesday, November 6

- 09:00-12:00 Noon, PIC NA TC Chapter Meeting

Adjournment: 12:17.

Respectfully submitted by:

Laura Nguyen

Sr. Coordinator, International Standards

SEMI Global Headquarters

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Minutes tentatively approved by:

Matthew Fuller (Entegris), Co-chair	<Date approved>
Melvin Jung (Intel), Co-chair	<Date approved>

Minutes officially approved by: **PIC NA OVTCCM on November 6, 2024.**

Table 14 Index of Available Attachments#1

<i>Title</i>	<i>Title</i>
Required Meeting Elements March 2024	SEMI EM TF -PIC Update 27 March 2024
[2024Spring] PIC NA TC Chapter Meeting Minutes	PIC MTF Report July 2024
JA_PIC_Liaison_20240719_R1	TFOF_ 6x12 Carrier and Load port Task Force July 05 2024_atm
Staff Report July 2024 v5_PIC	SNARF_6x12 EUVL Load Port July 3_DRAFT_atm
E72Revision TF Report to NAPIC TC_20240710	SNARF_6x12 EUVL pod July 5_DRAFT_atm
FFF update semicon west 24 update	SNARF_6x12 RSP July 05_DRAFT_atm

#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.