Physical Interfaces & Carriers Japan TC Chapter

Meeting Summary and Minutes

Japan Standards Winter 2018 Meetings in conjunction with SEMICON Japan 2018

Wednesday, December 12, 2018, 14:00 – 17:00

Conference Tower, Tokyo big Sight, Tokyo, Japan

TC Chapter Announcements

Next TC Chapter Meeting

Thursday, April 18, 2019, 2018, 14:00-17:00

SEMI Japan, Tokyo

Table 1 Meeting Attendees

Co-Chairs: Tsuyoshi Nagashima (Miraial), Kenji Yamagata (DAIFUKU), Noriyoshi Toyoda (Hirata Corporation)
SEMI Staff: Chie Yanagisawa (SEMI Japan)

Company	*Last*	*First*	*Company*	*Last*	*First*
Acteon NEXT	Komatsu	Shoji	Nihon Entegris	Akutagawa	Chieko
Asuzac	Kubo	Ryotaro	Shin-Etsu Polymer	Fukunaga	Tsukasa
DAIFUKU	Suzuki	Tomoko	Shin-Etsu Polymer	Shida	Hiroyuki
DAIFUKU	Yamagata	Kenji	Sinfonia Technologies	Otani	Mikio
DISCO	Kobinata	Kyosuke	TDK	Kanashiro	Kiyoshi
Hirata Corporation	Toyoda	Noriyoshi	Tokyo Electron	Mashiro	Supika
Hitachi High-Technologies	Ikota	Masami	Tokyo Seimitsu	Azuma	Masayuki
JEOL	Asayama	Kyoichiro	Tokyo Seimitsu	Taniguchi	Naomune
Kumai Consulting	Kumai	Sadao	SUMCO	Nakai	Tetsuya
Mirial	Nagashima	Tsuyoshi	Yamamoto Planning	Yamamoto	Makoto
Murata Machinery	Ito	Yasuhisa	SEMI Japan	Yanagisawa	Chie

Table 2 Leadership Changes

WG/TF/SC/TC Name	*Previous Leader*	*New Leader*
300mm Tape Frame PI&C Task Force	The following persons remain as TF leaders ● Hayato Iwamoto (Sony Semiconductor Solutions) ● Hisashi Goto (Sony Semiconductor Solutions) ● Masayuki Azuma (Tokyo Seimitsu)	In addition to the current three leaders, the following person is newly appointed as a TF leader. ● Naomune Taniguchi (Tokyo Seimitsu)
Fan-Out Panel Level Packaging (FO-PLP) Panel FOUP TF	The following person remains as a TF leader ● Shoji Komatsu (Acteon NEXT)	In addition to the current leader, the following person is newly appointed as a TF leader. ● John Rudolf (Intel)

Table 3 Committee Structure Changes

Previous WG/TF/SC Name	*New WG/TF/SC Name or Status Change*
Fan-Out Panel Level Packaging (FO-PLP) Panel FOUP Task Force	Panel Level Packaging Panel FOUP Task Force

Table 4 Ballot Results

Document #	*Document Title*	*Committee Action*
6444	Line Item Revision to SEMI E152-0214: "MECHANICAL SPECIFICATION OF EUV POD FOR 150 mm EUVL RETICLES" with non-conforming title change to "SPECIFICATION FOR MECHANICAL FEATURES OF EUV POD FOR 150 mm EUVL RETICLES"	
Line Item 1	Document title is changed based on A4-1-4 of procedure manual	**Passed as balloted**
Line Item 2	Editorial change the title in Section 3	**Passed as balloted**
6445	Line Item Revision to SEMI E154-0814E: "MECHANICAL INTERFACE SPECIFICATION FOR 450 mm LOAD PORT" with non-conforming title change to "SPECIFICATION FOR MECHANICAL FEATURES OF 450 mm LOAD PORT"	
Line Item 1	Document title is changed based on A4-1-4 of procedure manual	**Passed with technical changes** A Ratification Ballot to be issued
6446	Line Item Revision to SEMI E158-0314E: "MECHANICAL SPECIFICATION FOR FAB WAFER CARRIER USED TO TRANSPORT AND STORE 450 mm WAFERS (450 FOUP) AND KINEMATIC COUPLING" with non-conforming title change to "SPECIFICATION FOR MECHANICAL FEATURES OF FAB WAFER CARRIER USED TO TRANSPORT AND STORE 450 mm WAFERS (450 FOUP) AND KINEMATIC COUPLING"	
Line Item 1	Document title is changed based on A4-1-4 of procedure manual	**Passed as balloted**
Line Item 2	Editorial change the title in Section 4	**Passed as balloted**
6447	Line Item Revision to SEMI E159-0314E: "MECHANICAL SPECIFICATION FOR MULTI APPLICATION CARRIER (MAC) USED TO TRANSPORT AND SHIP 450 mm WAFERS" with non-conforming title change to "SPECIFICATION FOR MECHANICAL FEATURES OF MULTI APPLICATION CARRIER (MAC) USED TO TRANSPORT AND SHIP 450 mm WAFERS"	
Line Item 1	Document title is changed based on A4-1-4 of procedure manual	**Passed with technical changes** A Ratification Ballot to be issued

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

Note 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

#	*Type*	*SC/TF/WG*	*Details*
None			

Table 6 Authorized Activities

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

#	*Type*	*SC/TF/WG*	*Details*
6485	SNARF	Panel Level Packaging Panel FOUP Task Force	New Standard: Specification for Panel FOUP For Panel Level Packaging
6486	SNARF	Panel Level Packaging Panel FOUP Task Force	New Standard: Specification for Panel FOUP Loadport For Panel Level Packaging

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

Table 7 Authorized Ballots

#	*When*	*TF*	*Details*
R6445	Cycle 1-2019	Global PIC Maintenance TF	Line Item Revision to SEMI E154-0814E: "MECHANICAL INTERFACE SPECIFICATION FOR 450 mm LOAD PORT" with non-conforming title change to "SPECIFICATION FOR MECHANICAL FEATURES OF 450 mm LOAD PORT"
R6447	Cycle 1-2019	Global PIC Maintenance TF	Line Item Revision to SEMI E159-0314E: "MECHANICAL SPECIFICATION FOR MULTI APPLICATION CARRIER (MAC) USED TO TRANSPORT AND SHIP 450 mm WAFERS" with non-conforming title change to "SPECIFICATION FOR MECHANICAL FEATURES OF MULTI APPLICATION CARRIER (MAC) USED TO TRANSPORT AND SHIP 450 mm WAFERS"

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

#	*TF*	*Title*	*Expiration Date*
None			

Table 9 SNARF(s) Abolished

#	*TF*	*Title*
None		

Table 10 Standard(s) to receive Inactive Status

Standard Designation	*Title*
None	

Table 11 New Action Items

Item #	*Assigned to*	*Details*
None		

Table 12 Previous Meeting Action Items

Item #	*Assigned to*	*Details*
20180720-03	SEMI staff	To report to 3D Packaging & Integration Japan TC Chapter that this TFOF is approved. -> CLOSE

1 Welcome, Reminders, and Introductions

Kenji Yamagata (DAIFUKU) called the meeting to order at 14:00. 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 Elements_August2018_E+J

2 Review of Previous Meeting Minutes

The TC Chapter reviewed the minutes of the previous meeting.

Motion:	Approve the previous meeting minutes as written
By / 2nd:	Kenji Yamagata (DAIFUKU) / Sadao Kumai (Kumai Consulting)
Discussion:	None
Vote:	19 in favor and 0 opposed. **Motion passed.**

Attachment: 02_20180921_PIC-Japan_MeetingMinutes_Final

3 Liaison Reports

3.1 *Physical Interfaces & Carriers Europe TC Chapter*

Chie Yanagisawa (SEMI Japan) reported for the Physical Interfaces & Carriers Europe TC Chapter that there is no update.

3.2 *North America Japan TC Chapter*

Chie Yanagisawa (SEMI Japan) reported for the Physical Interfaces & Carriers NA TC Chapter. Of note:

- Ballot 6311: New Standard: Specification for TEM lamella carrier used in Electron Microscopy Workflows to be submitted for Cycle 1-2019

Attachment: 03_NA PIC Liaison Report Nov2018 v1

3.3 *SEMI Staff Report*

Chie Yanagisawa (SEMI Japan) gave the SEMI Staff Report. Of note:

- SEMI Global Calendar of Events
- SEMICON Japan 2018
- Global Standards Meeting Schedule
- SEMICON Japan Standards Meetings
- 2018 Critical Dates for SEMI Standards Ballots
- A&R Ballot Review
- SEMI Standards Publications
- JRSC Topics
- Standards articles in SEMI Japan monthly newsletter

Attachment: 04_SEMI Staff Report 2018_1204

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 #6444: Line Item Revision to SEMI E152-0214: "MECHANICAL SPECIFICATION OF EUV POD FOR 150 mm EUVL RETICLES" with non-conforming title change to "SPECIFICATION FOR MECHANICAL FEATURES OF EUV POD FOR 150 mm EUVL RETICLES"

4.1.1 Line Item 1: Document title is changed based on A4-1-4 of procedure manual

4.1.2 Line Item 2: Editorial change the title in Section 3

4.2 Document #6445: Line Item Revision to SEMI E154-0814E: "MECHANICAL INTERFACE SPECIFICATION FOR 450 mm LOAD PORT" with non-conforming title change to "SPECIFICATION FOR MECHANICAL FEATURES OF 450 mm LOAD PORT"

4.2.1 Line Item 1: Document title is changed based on A4-1-4 of procedure manual

4.3 Document #6446: Line Item Revision to SEMI E158-0314E: "MECHANICAL SPECIFICATION FOR FAB WAFER CARRIER USED TO TRANSPORT AND STORE 450 mm WAFERS (450 FOUP) AND KINEMATIC COUPLING" with non-conforming title change to "SPECIFICATION FOR MECHANICAL FEATURES OF FAB WAFER CARRIER USED TO TRANSPORT AND STORE 450 mm WAFERS (450 FOUP) AND KINEMATIC COUPLING"

4.3.1 Line Item 1: Document title is changed based on A4-1-4 of procedure manual

4.3.2 Line Item 2: Editorial change the title in Section 4

4.4 Document #6447: Line Item Revision to SEMI E159-0314E: "MECHANICAL SPECIFICATION FOR MULTI APPLICATION CARRIER (MAC) USED TO TRANSPORT AND SHIP 450 mm WAFERS" with non-conforming title change to "SPECIFICATION FOR MECHANICAL FEATURES OF MULTI APPLICATION CARRIER (MAC) USED TO TRANSPORT AND SHIP 450 mm WAFERS"

4.4.1 Line Item 1: Document title is changed based on A4-1-4 of procedure manual

Attachment: 05_#6444_BallotReport, 06_#6445_BallotReport, 07_#6446_BallotReport, 08_#6447_BallotReport_r1

5 Subcommittee and Task Force Reports

5.1 *300 mm Tape Frame PI&C TF*

Masayuki Azuma (Tokyo Seimitsu) reported for 300 mm Tape Frame PI&C Task Force as attached.

Attachment: 09_20181212_300mmTapeFramePIC-TF_MeetingSummary_22Nov2018

5.2 *Fan-Out Panel Level Packaging (FO-PLP) Panel FOUP TF*

Shoji Komatsu (Acteon NEXT) reported that for the FO-PLP Panel FOUP Task Force as attached. Of note:

- The following items to be proposed at the New Business section of this meeting
    - Appointment of John Rudolf (Intel) as an additional task force leader

- Modification on the TFOF and the two SNARFs

Attachment: 10_PanelFOUP-TF_Report_20181212

5.3 *Global PIC Standards Maintenance TF*

Shoji Komatsu (Acteon NEXT) reported for the Global PIC Standards Maintenance Task Force as follows.

- Line Item Revisions Ballots of E152, E154, E158 and E159
  - Submitted for Cycle 7 and reviewed at this meeting
    - Details are recorded on Table 4.
- SEMI E166: Specification for 450 mm Cluster Module Interface: Mechanical Interface and Transport Standard
  - The next action to be proposed at Japan Spring 2019 Meetings.

5.4 *Japan Electron Microscopy (EM) Workflow liaison TF*

Kyoichiro Asayama (JEOL) reported for the Japan EM Workflow Liaison Task Force reported as attached. Of note:

- Hirokazu Tsunobuchi (Keyence) joined the TF activity
- TF made reading and writing experiment of 2D ID code and to propose the ideas to the NA EM Workflow TF for Ballot 6311 draft.

Attachment: 11_181212_EM Workflow LiaisonTF_r1

5.5 *(Japan Chapter of Silicon Wafer TC) JA Shipping Box TF*

Shoji Komatsu (Acteon NEXT) reported that there is no activity.

5.6 *(Japan Chapter of Silicon Wafer TC / NA Chapter of PI&C TC) International 450mm Shipping Box TF*

Shoji Komatsu (Acteon NEXT) reported that there is no activity.

5.7 [*Liaison: 3D Packaging & Integration NA TC Chapter] Fan-Out Panel Level Packaging (FO-PLP) Panel TF*

Shoji Komatsu (Acteon NEXT) reported for Fan-Out Panel Level Packaging (FO-PLP) Panel TF as follows.

- Document #6332 “New Standard, Specification for Panel Substrate Characteristics for Fan-Out Panel Level Packaging (FO-PLP) Applications”
  - Ballot #6332 submitted for Cycle 7-2018 and failed at the TC Chapter meeting during NA Fall 2018 Meetings
  - Ballot #6332A to be submitted for Cycle 1-2019

6 Old Business

6.1 Project period Review

Chie Yanagisawa (SEMI Japan) reported that there are four SNARFs under the Japan TC Chapter and all the ballots reviewed at this TC Chapter meeting. (Details are recorded on Table 4.)

6.2 5-Year Review

The following document is due for 5-Year Review and the next action is mentioned in the TF report above.

- SEMI E166-0814: Specification for 450 mm Cluster Module Interface: Mechanical Interface and Transport Standard

7 New Business

7.1 *Proposal for Fan-Out Panel Level Packaging (FO-PLP) FOUP Task Force*

7.1.1 New TF Leader

Shoji Komatsu (Acteon NEXT) address to the committee on this topic.

Motion:	Approve John Rudolf (Intel) as an additional leader for the TF
By / 2nd:	Shoji Komatsu (Acteon NEXT) / Kenji Yamagata (DAIFUKU)
Discussion:	None
Vote:	18 in favor and 0 opposed. **Motion passed.**

7.1.2 Revision to TFOF

Shoji Komatsu (Acteon NEXT) address to the committee on this topic. The TC Chapter reviewed the proposed revised TFOF. The main items of TFOF are as follows.

Name of Task Force (TF): ~~Fan-Out~~ Panel Level Packaging ~~(FO-PLP)~~ Panel FOUP Task Force

1. Charter: *(State the objective of the proposed TF.)*
This TF will focus on the development on Panel FOUP and related physical interface standards for Panel Level Packaging ~~FO-PLP~~ utilizing existing SEMI 450mm standards.
The target panel size is assumed as follows;

- Width 500~650mm x Depth 500~650mm

2. Scope: *(Define the specific activities that the TF will conduct.)*
Develop the requirements for:

- Panel FOUP
- Equipment to Panel FOUP interfaces

Motion:	Approve the revised TFOF for Panel Level Packaging Panel FOUP Task Force
By / 2nd:	Shoji Komatsu (Acteon NEXT) / Kenji Yamagata (DAIFUKU)
Discussion:	None
Vote:	19 in favor and 0 opposed. **Motion passed.**

7.1.3 New SNARFs

Shoji Komatsu (Acteon NEXT) address to the committee on this topic. The TC member review took place between November 27, 2018 and December 10, 2018. The TC Chapter reviewed the proposed SNARFs as follows.

SNARF for: New Standard - SPECIFICATION FOR PANEL FOUP FOR ~~FAN-OUT~~ PANEL LEVEL PACKAGING~~(FO-PLP)~~

1. Rationale:

Fan-Out Panel Level Packaging (FO-PLP) is under development and expected to become a critical 3D integration and packaging process. Panel FOUP Standardization is delaying the introduction of the technology due to the need to customize tools and processes for Automated handling interface, Loadport interface and mini-environment base on the Panel size.

2. Scope:

Panel FOUP Designed by the Panel size for 515mm x 510mm and 600mm x600mm.

Scope of the standard item:

- Door interface
- Bottom interface
- Maximum outer size of FOUP for various panel sizes.
- 2 Slot type: 12slot and 6slot (Note: Maximum slot numbers is limited by height)
- AMHS Interface
- Carrier ID: RF-ID only

NOTE : "Panel" includes Panel with or without carrier

Motion:	Approve SNARF for New Standard - Specification for Panel FOUP For Panel Level Packaging
By / 2nd:	Shoji Komatsu (Acteon NEXT) / Kenji Yamagata (DAIFUKU)
Discussion:	None
Vote:	19 in favor and 0 opposed. **Motion passed.**

SNARF for: New Standard - SPECIFICATION FOR PANEL FOUP LOADPORT FOR ~~FAN-OUT~~ PANEL LEVEL PACKAGING~~(FO-PLP)~~

1. Rationale:

Fan-Out Panel Level Packaging (FO-PLP) is under development and expected to become a critical 3D integration and packaging process. Panel FOUP Loadport Standardization is delaying the introduction of the technology due to the need to customize tools and processes for Equipment interface and Panel FOUP interface base on the Panel size.

2. Scope:

Scope of the standard item:

- Specifications such as Interface Between Load Port and Carrier Delivery System in Chapter 7 of E154(450mm Loadport)
- Specifications such as Interface Between Load Port and Carrier Door in Chapter 8 of E154
- Specifications such as Interface Between Load Port and SME in Chapter 9 of E154
- Specifications such as Load Port Status Indicators and Indicator Placement Area in Chapter 10 of E154
- Specifications such as PGV docking flange in E64

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Motion:	Approve SNARF for New Standard - Specification for Panel FOUP Loadport For Panel Level Packaging
By / 2nd:	Shoji Komatsu (Acteon NEXT) / Kenji Yamagata (DAIFUKU)
Discussion:	None
Vote:	18 in favor and 0 opposed. **Motion passed.**

7.2 *Proposal for new TF Leaders: 300mm Tape Frame PI&C Task Force*

Masayuki Azuma (Tokyo Seimitsu) address to the committee on this topic.

Motion:	Approve Naomune Taniguchi (Tokyo Seimitsu) as an additional TF leader of 300 mm Tape Frame PI&C Task Force
By / 2nd:	Masayuki Azuma (Tokyo Seimitsu) / Shoji Komatsu (Acteon NEXT)
Discussion:	None
Vote:	18 in favor and 0 opposed. **Motion passed.**

8 Action Item Review

8.1 Open Action Items

20180720-03: SEMI staff to report to 3D Packaging & Integration Japan TC Chapter that this TFOF is approved.

-> CLOSE

8.2 New Action Items

None

9 Next Meeting and Adjournment

The next meeting is scheduled as follows. See http://www.semi.org/en/events for the current list of meeting schedules.

Thursday, April 18, 2019, 14:00-17:00

SEMI Japan office, Tokyo

Having no further business, a motion was made to adjourn. Adjournment was at 17:00.

Respectfully submitted by:

Chie Yanagisawa

Manager

SEMI Japan

Phone: +81.3.3222.5863
Email: cyanagisawa@semi.org

Minutes tentatively approved by:

Tsuyoshi Nagashima (Miraial), Co-chair	March 14, 2019
Kenji Yamagata (Daifuku), Co-chair	March 13, 2019
Noriyoshi Toyoda (Hirata Corporation), Co-chair	March 14, 2019

Table 13 Index of Available Attachments[#1]

Title	*Title*
01_SEMI Standards Required Elements_August2018_E+J	07_#6446_BallotReport
02_20180921_PIC-Japan_MeetingMinutes_Final	08_#6447_BallotReport_r1
03_NA PIC Liaison Report Nov2018 v1	09_20181212_300mmTapeFramePIC-TF_MeetingSummary_22Nov2018
04_SEMI Staff Report 2018_1204	10_PanelFOUP-TF_Report_20181212
05_#6444_BallotReport	11_181212_EM Workflow LiaisonTF_r1
06_#6445_BallotReport	

#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 [SEMI Staff Name] at the contact information above.