Japan TC Chapter of 3DS-IC Global Technical Committee
Meeting Summary and Minutes

Japan Standards Winter 2016 Meetings
Friday, February 5, 2016, 3:40 p.m. – 5:00 p.m. [JST]
SEMI Japan office, Tokyo, Japan

Next Committee Meeting
Friday, April 15, 2016, 0:30 p.m. – 2:00 p.m. [JST]
Japan Standards Spring 2016 Meetings, Tokyo, Japan

Committee Announcements (optional)
None

Table 1 Meeting Attendees
Italics indicates virtual participants

Co-Chairs: Masahiro Tsuriya (iNEMI), Haruo Shimamoto (AIST)
SEMI Staff: Chie Yanagisawa (SEMI Japan)
Attendee: 16 + SEMI: 1

<table>
<thead>
<tr>
<th>Company</th>
<th>Last</th>
<th>First</th>
<th>Company</th>
<th>Last</th>
<th>First</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acteon</td>
<td>Komatsu</td>
<td>Shoji</td>
<td>Micron Memory Japan</td>
<td>Sonobe</td>
<td>Kaoru</td>
</tr>
<tr>
<td>AIST</td>
<td>Kada</td>
<td>Morihiro</td>
<td>Miraial</td>
<td>Umeda</td>
<td>Toshiya</td>
</tr>
<tr>
<td>AIST</td>
<td>Shimamoto</td>
<td>Haruo</td>
<td>Senju Metal Industry</td>
<td>Roppoingi</td>
<td>Takahiro</td>
</tr>
<tr>
<td>AiT</td>
<td>Kato</td>
<td>Kazunori</td>
<td>Shin-Etsu Polymer</td>
<td>Suzuki</td>
<td>Hideki</td>
</tr>
<tr>
<td>Asahi Glass</td>
<td>Takahashi</td>
<td>Mamoru</td>
<td>SUMCO</td>
<td>Nakai</td>
<td>Tetsuya</td>
</tr>
<tr>
<td>DISCO</td>
<td>Masuchi</td>
<td>Sumio</td>
<td>Tokyo Electron</td>
<td>Shibata</td>
<td>Taki</td>
</tr>
<tr>
<td>FujiFilm</td>
<td>Abe</td>
<td>Hirofumi</td>
<td>Self</td>
<td>Yoshise</td>
<td>Masanori</td>
</tr>
<tr>
<td>iNEMI</td>
<td>Tsuriya</td>
<td>Masahiro</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intel</td>
<td>Tomita</td>
<td>Yoshihiro</td>
<td>SEMI Japan</td>
<td>Yanagisawa</td>
<td>Chie</td>
</tr>
</tbody>
</table>

* alphabetical order by company name

Table 2 Leadership Changes

<table>
<thead>
<tr>
<th>Group</th>
<th>Previous Leader</th>
<th>New Leader</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steering Group</td>
<td>--</td>
<td>Eiji Yoshino (Hitachi High-Technologies)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yoshihiro Tomita (Intel) and Masahiro Tsuriya (iNEMI) remains.</td>
</tr>
</tbody>
</table>

Table 3 Ballot Results (or move to Section 4, Ballot Review)

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.

<table>
<thead>
<tr>
<th>Document #</th>
<th>Document Title</th>
<th>Committee Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4 Authorized Ballots (or move to Section 7, New Business)

<table>
<thead>
<tr>
<th>#</th>
<th>When</th>
<th>SC/TF/WG</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 5 Authorized Activities (or move to Section 7, New Business)

<table>
<thead>
<tr>
<th>#</th>
<th>Type</th>
<th>SC/TF/WG</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6 New Action Items (or move to Section 8, Action Item Review)

<table>
<thead>
<tr>
<th>Item #</th>
<th>Assigned to</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>20160205-1</td>
<td>Masahiro Tsuriya</td>
<td>To send a message to Allen Richard, co-chair of NA TC Chapter, for thanking for the explanation.</td>
</tr>
</tbody>
</table>

Table 7 Previous Meeting Actions Items (or move to Section 8, Action item Review)

<table>
<thead>
<tr>
<th>Item #</th>
<th>Assigned to</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>20151016-1</td>
<td>SEMI Staff</td>
<td>To ask the reason why North America TC Chapter discontinued Doc. 5692 and Doc. 5174.</td>
</tr>
</tbody>
</table>

1 Welcome, Reminders, and Introductions

Masahiro Tsuriya (iNEMI) called the meeting to order at 3:50 a.m. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves.

2 Review of Previous Meeting Minutes

The committee reviewed the minutes of the previous meeting.

Motion: To approve the previous meeting minute as written

By / 2nd: Haruo Shimamoto (AIST) / Kaoru Sonobe (Micron Japan)

Discussion: None

Vote: 14 in favor and 0 opposed. Motion passed.

3 Liaison Reports

3.1 3DS-IC North America TC Chapter

Chie Yanagisawa (SEMI Japan) reported for the NA TC Chapter as attached. Of note:

- Leadership
  - Committee Co-chairs
    - Sesh Ramaswami (Applied Materials)
    - Rich Allen (NIST)
    - Chris Moore (BayTech-Resor)
  - Meeting Information
    - Last meeting: November 3 for the NA Fall 2015 Meetings, San Jose, California
    - Next meeting: April 5 for the NA Spring 2016 Meetings, San Jose, California
  - Task Force Updates
    - Bonded Wafer Stacks TF
      - Doc 5823A, Revision to SEMI 3D2-1113, Specification for Glass Carrier Wafers for 3DS-IC Applications approved by TC Chapter and A&R
      - Doc 5173, New Standard: Guide for Describing Silicon Wafers for Use in a 300 mm 3DS-IC Wafer Stack
Survey: Bond Void Effects
- Inspection and Metrology TF
  - SNARF for New Standard: Terminology for 3DS-IC Technology

Attachment: 01_ NA 3DS-IC Report 20160121v1

3.2 3DS-IC Taiwan TC Chapter

Chie Yanagisawa (SEMI Japan) reported for the Taiwan TC Chapter. Of note:
- Leadership
  - Tzu-Kun Ku (ITRI)
  - Wendy Chen (King Yuan Electronics)
  - Roger Hwang (ASE)
- Meeting Information
  - Last meeting: October 6, 2015, SEMI Taiwan office
  - Next meeting: Q1CY2016 (pending next ballot requirement)
- Highlights
  - Doc #5485 passed proofing and published in June as new SEMI standard:
    - 3D14-0615: Guide for Incoming Outgoing Quality Control and Test
  - Doc #5688A passed cycle 6 voting process and adjudicated in TC chapter meeting on Oct 6. Passed ISC A&R process and is awaiting announcement of standards Number).
    - Middle-end Process TF: “NEW STANDARD: GUIDE FOR OVERLAY PERFORMANCE ASSESSMENT FOR 3DS-IC PROCESS”
  - Doc #5800 ballot-drafting to be completed by the end of Q1 (target)
  - Concluded two possible topics in recent TC meeting for future collaboration with Japan 3DS-IC committee:
    - Thin wafer/die handling
    - Manufacturing traceability throughout 3DS-IC process flow

Attachment: 02_ Taiwan 3DS-IC Liaison Report Oct 2015

3.3 SEMI Staff Report

Chie Yanagisawa (SEMI Japan) reported for SEMI Staff report as attached. The contents are as following:
- Global SEMI Events
- Global Standards Meetings Schedule
- Ballot Critical Dates
- A&R Ballot Review
- Publication Update
- SEMI Japan Standards Awards for 2015
- Japan TC Chapter of Global Automated Test Equipment Technical Committee

Attachment: 03_ SEMI Staff Report 20160203_r1

4 Ballot Review

None
5 Subcommittee & Task Force Reports

5.1 Steering Group

Yoshihiro Tomita (Intel) reported for the Steering Group as attached. Of note:

- Invitation letter has been sent out to Toshiba and waiting for response.
- Workshop
  - 2nd Workshop was held on January 12, 2016 at SEMI Japan office with 61 participants
  - 3rd Workshop to be held on June 6, 2016 (TBD), asking ITRI to send a speaker to the workshop
- Brainstorming discussion

He also addressed the committee on this topic.

<table>
<thead>
<tr>
<th>Motion:</th>
<th>To approve the TC Chapter to assign Eiji Yoshino (Hitachi High-Technologies) to a co-leader of the Steering Group.</th>
</tr>
</thead>
<tbody>
<tr>
<td>By / 2nd:</td>
<td>Yoshihiro Tomita (Intel) / Masahiro Tsuriya (iNEMI)</td>
</tr>
<tr>
<td>Discussion:</td>
<td>None</td>
</tr>
<tr>
<td>Vote:</td>
<td>14 in favor and 0 opposed. <strong>Motion passed.</strong></td>
</tr>
</tbody>
</table>

**Attachment:** 04_020516_3DS-IC STWG Meeting Minutes_r1

6 Old Business

6.1 Reason to discontinue Doc. 5692 and Doc. 5174 by the North America TC Chapter

The Action Item from the previous meeting on October 16, 2015 was SEMI Staff would ask the reason why North America TC Chapter discontinued Doc. 5692 and Doc. 5174. The following is the response by Richard Allen, Co-chair of NA TC Chapter, given in his email on February 2, 2016.

- **Doc. 5692: New Standard: Guide for Describing Glass Wafers for Use as 300 mm Carrier Wafers in a 3DS-IC Temporary Bond-Debond (TBDB) Process**
  - Reasons to discontinue the document
    - The expectation was that the industry would focus on one – or maybe two – specific configurations for carrier wafers. However, since the industry had not yet settled on a particular carrier wafer, this document would have ended up looking virtually identical to “3D2: Specification for Glass Carrier Wafers for 3DS-IC Applications”, which is the general order table.
    - Think of these two documents as being similar to the ordering process for silicon wafers. 3D2 would be the overview Table 2 in SEMI M1, which gives every option for ordering silicon wafers of any diameter from 1” to 450 mm. Document 5692 was intended to be similar to the later tables in M1 (and other SEMI documents), where the committee gives a minimal set of parameters to acquire wafers of known useful dimensions and properties.
- **Doc. 5174: New Standard: Specification for Identification and Marking for Bonded Wafer Stacks**
  - Reasons to discontinue the document
    - We didn’t get the needed support for developing this standard & I was focused on other standards. I do think this to still be of value, but would need participation from people familiar with the problems.

**Action Item 1:** Masahiro Tsuriya (iNEMI) to contact Allen Richard, co-chair of NA TC Chapter to ask for the continuation of this activity by organizing the global team-up from Taiwan and Japan.
7 New Business

7.1 Tape Adhesive Strength Study Group
Haruo Shimamoto (AIST) mentioned that the activity report would be made at the next Japan TC Chapter meeting.

8 Action Item Review

8.1 Open Action Items
None

8.2 New Action Items
Chie Yanagisawa (SEMI Japan) reviewed the new action items. This can be found in the New Action Items table at the beginning of these minutes.

9 Next Meeting and Adjournment
The next meeting of the 3DS-IC Japan TC Chapter is scheduled for Friday, April 15, 2016, 0:30 p.m. – 2:00 p.m. at Japan Standards Spring 2016 Meetings at SEMI Japan office in Tokyo.
Table 8 Index of Available Attachments #1

<table>
<thead>
<tr>
<th>#</th>
<th>Title</th>
<th>#</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>NA 3DS-IC Report 20160121v1</td>
<td>03</td>
<td>SEMI Staff Report 20160203_r1</td>
</tr>
<tr>
<td>02</td>
<td>Taiwan 3DS-IC Liaison Report Oct 2015</td>
<td>04</td>
<td>020516_3DS-IC STWG Meeting Minutes_r1</td>
</tr>
</tbody>
</table>

#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.