



# North America 3DS-IC (Three-dimensional Stacked Integrated Circuits) Standards Committee Meeting Summary and Minutes



SEMI®  
International  
Standards

**SEMICON West 2014 Meetings**  
8 July, 15:00 – 17:00 Pacific Time  
San Francisco Marriott Marquis Hotel in San Francisco, California

### Committee Announcements

*Next Committee Meeting*  
North America Standards Fall 2014 Meetings  
November 3-6, 2014  
SEMI Headquarters in San Jose, California

### Table 1 Meeting Attendees

*Italics indicate virtual participants*

**Co-Chairs:** Urmi Ray (Qualcomm), Sesh Ramaswami (Applied Materials), Richard Allen (NIST), Chris Moore (BayTech-Resor)

**SEMI Staff:** Paul Trio

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
BayTech-Resor	Baylies	Win	NIST	Allen	Richard
BayTech-Resor	Moore	Chris	NIST	Obeng	Yaw
BW & Associates	Wu	Bevan	<i>NIST</i>	<i>Read</i>	<i>Dave</i>
CMPUGTW	Kong	Lai-Cheng	Sonoscan	Martell	Steve
Corning	Schmidt	Yaw	SuperSight	Perroots	Len
ITRI	Wen	Bor-Jiunn			
National Taiwan University of Science & Technology	Chen	Arthur	SEMI	Trio	Paul

### Table 2 Leadership Changes

<i>Group</i>	<i>Previous Leader</i>	<i>New Leader</i>
None		

### 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>Committee Action</i>
5173E	New Standard: Guide for Describing Silicon Wafers for Use in a 300 mm 3DS-IC Wafer Stack	<b>Failed</b> , to be reballoted
5447A	New Standard: Terminology for Through Glass Via and Blind Via in Glass Geometrical Metrology	<b>Passed</b> as balloted. Superclean
5506	New Standard: Guide for Measuring Warp, Bow and TTV on Low Stiffness Wafers	<b>Failed</b> , to be reballoted

**Table 4 Authorized Activities**

#	Type	SC/TF/WG	Details
None			

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**

#	When	SC/TF/WG	Details
5270	Cycle 5 or 6, 2014	Inspection & Metrology TF	New Standard: Guide for Measuring Voids in Bonded Wafer Stacks
5506A	Cycle 5 or 6, 2014	Inspection & Metrology TF	New Standard: Guide for Measuring Warp, Bow and TTV on Low Stiffness Wafers

**Table 6 New Action Items**

Item #	Assigned to	Details
2014Jul #01	Rich Allen, Paul Trio	Discuss how best to structure 5173F document (e.g., adding a note) since it will require M1 to implement.
2014Jul #02	Dave Read	Draft a SNARF for the new Auxiliary Information document related to the SNARF #5270 activity for GCS approval.
2014Jul #03	Paul Trio	Arrange for access to SEMI HB1 for Victor Vartanian (SEMATECH)
2014Jul #04	Paul Trio	Send editable version of SNARF #5616 to Victor Vartanian (SEMATECH)
2014Jul #05	Rich Allen, Victor Vartanian	Contact Steve Olson regarding Thin Wafer TF participation.
2014Jul #06	Yaw Obeng	Provide university contacts for 3D-IC packaging standardization gaps survey.
2014Jul #07	Paul Trio	Send 3D-IC packaging gaps survey form to global 3D-IC committee members for feedback.

**Table 7 Previous Meeting Actions Items**

Item #	Assigned to	Details
2013Jul #02	Paul Trio	Remind Rich Allen to look into renaming the Thin Wafer Handling Task Force to Thin Wafer Task Force then form appropriate working groups focusing on various areas (e.g., Handling WG, Shipping WG).

**1 Welcome, Reminders, and Introductions**

Rich Allen, committee co-chair, called the meeting to order at 3:05 PM. After welcoming all attendees, the SEMI meeting reminders on membership requirements, antitrust, patentable technology, and meeting guidelines were presented and explained. Finally, the agenda was reviewed.

**Attachment:** 01, SEMI Standards Required Meeting Elements

**2 Review of Previous Meeting Minutes**

The committee reviewed the minutes of the previous meeting held April 1 in conjunction with the NA Standards Spring 2014 meetings.



**Motion:** Accept the minutes of the previous meeting as written.  
**By / 2<sup>nd</sup>:** Steve Martell (Sonoscan) / Chris Moore (BayTech-Resor)  
**Discussion:** None  
**Vote:** 8-0 in favor. Motion passed.

**Attachment:** 02, NA 3DS-IC SEMICON Spring 2014 meeting (April 1) minutes

### 3 SEMI Staff Report

Paul Trio (SEMI) gave the SEMI Staff Report. The key items were as follows:

- 2014 Global Calendar of Events
  - SEMICON Taiwan (September 3-5, Taipei)
  - Strategic Materials Conference (September 30 – October 1, Santa Clara, California)
  - SEMICON Europa / Plastic Electronics (October 7-9, Grenoble, France)
  - SEMICON Japan (December 3-5, Tokyo)
- 2015 Global Calendar of Events
  - Industry Strategy Symposium (January 11-14, Half Moon Bay, California)
  - SEMICON Korea / LED Korea (February 4-6, Seoul)
  - SEMICON China / FPD China (March 17-19, Shanghai)
  - LED Taiwan (March 25-28, Taipei)
  - SEMICON Southeast Asia (April 22-24, Penang, Malaysia)
  - SEMICON West (July 14-16, San Francisco, California)
  - SEMICON Taiwan (September 2-4, Taipei)
  - SEMICON Europa (October 6-8, Dresden, Germany)
  - SEMICON Japan (December 16-18, Tokyo)
- NA Standards Meetings at SEMICON West 2014 (July 6-10)
  - 3DS-IC | EHS | Facilities & Gases | HB-LED | Information & Control | Liquid Chemicals | MEMS/NEMS | Metrics | PV Materials | Physical Interfaces & Carriers | Silicon Wafer | Traceability
- Standards Workshop at SEMICON West 2014
  - Wafer Geometry Control for Advanced Semiconductor Manufacturing (Wednesday, July 9)
    - Important developments and future needs in wafer geometry for advanced semiconductor manufacturing.
    - Presenters from IBM, Intel as well as key equipment companies.
    - Proposals discussed during this workshop will be considered for standardization by the Advanced Wafer Geometry TF under the Silicon Wafer Committee.



- Standards Updates at SEMICON West 2014
  - Tuesday, July 8
    - [Semiconductor Technology Symposium (STS) Session] “Challenges, Innovations and Drivers in Metrology,” updates on Metrics activities
    - [STS Session] “Embracing What’s Next – Devices & Systems for Big Data, Cloud and IoT,” updates on 3DS-IC activities
  - Wednesday, July 9
    - [TechXPOT South] “Subcomponent Supply Chain for 10 nm and Beyond,” updates on Facilities & Gases activities
  - Thursday, July 10
    - [TechXPOT North] “Disruptive Compound Semiconductor Technologies,” updates on Compound Semiconductor Materials activities
- SEMI Standards Publications
  - April 2014 Cycle
    - New Standards – 2, Revised Standards – 13, Reapproved Standards – 0, Withdrawn Standards – 0
  - May 2014 Cycle
    - New Standards – 3, Revised Standards – 4, Reapproved Standards – 0, Withdrawn Standards – 0
  - June 2014 Cycle
    - New Standards – 1, Revised Standards – 3, Reapproved Standards – 4, Withdrawn Standards – 1, Total in portfolio – 909 (includes 106 Inactive Standards)
- NA Standards Fall 2014 Meetings
  - November 3-6 at SEMI Headquarters (San Jose, California)
- Technical Ballot Critical Dates for NA Standards Fall 2014 Meetings
  - Cycle 5: due July 18 / Voting Period: July 25 – August 25
  - Cycle 6: due August 12 / Voting Period: August 26 – September 25
- Upcoming North America Meetings (2015)
  - NA Standards Spring 2015 Meetings (March 30 – April 2, San Jose, California)
  - NA Standards Meetings at SEMICON West 2015 (July 13-16, San Francisco, California)

**Attachment:** 03, SEMI Standards Staff Report

#### 4 Taiwan 3DS-IC Committee

Paul Trio (SEMI) provided an update on Taiwan 3DS-IC activities.

- New SEMI Staff Contact:
  - Andy Tuan | atuan@semi.org
- Leadership Change
  - Testing Task Force
    - Ming-Chin Tsai (KYECC) has been appointed as new TF co-leader.
    - Sam Ko (KYECC) stepped down as TF co-leader.

- Published Standards
  - SEMI 3D6, Guide for CMP and Micro-Bump Processes for Frontside Through Silicon Via (TSV) Integration (formerly SEMI Draft Document # 5474)
  - SEMI 3D7, Guide for Alignment Mark for 3DS-IC Process (formerly SEMI Draft Document # 5473)
- Current Activities
  - Testing TF
    - New Standard: Guide for Incoming/Outgoing Quality Control and Testing Flow for 3DS-IC Products (#5485)
  - Middle-End Process TF
    - New Standard: Guide for Overlay Performance Assessment for 3DS-IC Process (#5688)

## 5 Japan Packaging Committee

Paul Trio provided the Japan 3D-IC liaison report under the JA Packaging Committee. The key items were as follows:

- Next meeting: July 14 during the Japan Summer 2014 Meetings (SEMI Japan office, Tokyo)
- Ballot Results
  - Doc. 5691, New Standard: Test Method for Measurement of Chip (Die) Strength by Mean of Cantilever Bending
    - Passed technical committee and procedural reviews. Waiting for publication.
- Thin Die Bending Strength Measurement Method Task Force
  - Doc. 5691 to be published soon {see details above}
  - TF is planning to submit technical paper to Japan Institute of Electronics Packaging (JIEP) Proceedings Vol. Sept-2014.
  - TF is also planning to add flow chart as “Related Information” or “Appendix”.
- Thin Chip Handling Task Force
  - Approved by the Japan Packaging Committee on March 20, 2014
  - Charter: The Thin Chip Handling TF aims to develop standards for carriers such as chip trays for reliable handling and shipping of thin chips and dies used in high-volume 3D IC manufacturing.
  - Scope: The TF will define requirements for carriers to handle thin chips including physical interfaces used in 3D IC manufacturing, as well as shipping requirements, including packaging, reliability, and other relevant criteria for thin chips.
    - The TF will develop a specification and the test methods for the carriers to meet the requirements.
    - The TF will develop standards to handle thin chips and die by adhesive tray and others.
    - The TF will define dimensions, the test method for adhesive strength of adhesive tray.
  - The kick off meeting held April 11.
  - Working on SNARF, target first draft in July. Ballot planned for submission in October.
- 3D-IC Study Group
  - Study Group meeting is being held actively
    - Aug. 29, 2012: Workshop with 20 attendees
    - Oct. 5, 2012: Kick Off Meeting with 20 attendees
    - Nov. 7, 2012: 2nd Meeting with 14 attendees
    - Dec. 6, 2012: 3rd Meeting with 31 attendees
    - Feb. 1, 2013: 4th Meeting with 17 attendees

- Mar. 7, 2013: 5th Meeting with 28 attendees
- Mar. 26, 2013: 6th Meeting with 21 attendees
- Apr. 26, 2013: 7th Meeting with 16 attendees
- May. 17, 2013: 8th Meeting with 18 attendees
- Jun. 27, 2013: 9th Meeting with 17 attendees
- Sep. 19, 2013: 10th Meeting with 13 attendees
- Oct. 22, 2013: 11th Meeting with 24 attendees
- Nov. 28, 2013: 13rd Meeting with 22 attendees
- Dec. 5, 2013: 14th Meeting with 22 attendees
- Dec. 19, 2013: 15th Meeting with 15 attendees
- Jan. 13, 2014: 16th Meeting with 18 attendees
- Mar. 11, 2014: 17th Meeting with 21 attendees
- May. 8, 2014: 18th Meeting with 21 attendees
- Conducted a survey to the 3D-IC SG members to determine standards needed, in order to promote [and propagate] 3D-IC TSV Products in the future. Discussing future SG activities based on survey results.
- SEMI Staff:
  - Naoko Tejima | ntejima@semi.org

**Attachment:** 04, Japan 3D-IC Report

## 6 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.

NOTE 1: Committee adjudication on Cycle 6 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 document is provided below the summary tables.

### 6.1 Cycle 6 Ballots

Document #	Document Title	Committee Action
5173E	New Standard: Guide for Describing Silicon Wafers for Use in a 300 mm 3DS-IC Wafer Stack	<b>Failed</b> , to be reballoted
5447A	New Standard: Terminology for Through Glass Via and Blind Via in Glass Geometrical Metrology	<b>Passed</b> as balloted. Superclean
5506	New Standard: Guide for Measuring Warp, Bow and TTV on Low Stiffness Wafers	<b>Failed</b> , to be reballoted

#### Document 5173E Reballot:

Additional discussion will be needed on how to best structure the 5173F (New Standard: *Guide for Describing Silicon Wafers for Use in a 300 mm 3DS-IC Wafer Stack*) document since it will require SEMI M1 to implement. The intent is that requirements/values unique to Document 5173 will be provided; otherwise, users will be referred to M1. Once the appropriate approach has been identified, GCS approval will requested accordingly.

**Action Item:** 2014Jul #01, Rich Allen and Paul Trio to discuss how best to structure 5173F document (e.g., adding a note) since it will require M1 to implement.

**Attachment:** 05, Ballot Review for Doc. 5173E  
 06, Ballot Review for Doc. 5447A  
 07, Ballot Review for Doc. 5506

## 7 Task Force Reports

### 7.1 Bonded Wafer Stacks Task Force

Rich Allen reported that ballot 5173E will need to be reworked {see discussion above}. Also, the task force is still working on the following Documents:

- Doc. 5174 – New Standard: Specification for Identification and Marking for Bonded Wafer Stacks
- 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
- Doc. 5713 – New Standard: Specification of Glass Interposers

With regard to Document 5692, the TF discussed that its scope may be too close to SEMI 3D2 (*Specification for Glass Carrier Wafers for 3DS-IC Applications*), but have not yet decided whether or not to discontinue the activity.

### 7.2 Inspection & Metrology Task Force

Dave Read reported that the task force has been working on Document 5270 (New Standard: *Guide for Measuring Voids in Bonded Wafer Stacks*). This Document focuses on the inspection of bonded wafer pairs with bond voids. The Guide is based on experimental results from round robin type experiment with participating laboratories. Each laboratory measured bonded wafers with voids of known size and depth. There were eight (8) contributors of the data. The voids were artificially produced which will be identified in the Limitations section of the Document.

The task force also intends to develop an auxiliary document to archive the experimental inspection data contributed in support Document 5270. Paul Trio stated that a SNARF for the new auxiliary information will be needed. Auxiliary Information are approved via 2/3 majority vote in a TC Chapter meeting.

Victor Vartanian reported that the TF has also been working on Document 5616 (Line Item Revision to SEMI 3D4, *Guide for Metrology for Measuring Thickness, Total Thickness Variation (TTV), Bow, Warp/Sori, and Flatness of Bonded Wafer Stacks*) based on inputs received from Murray Bullis (Materials & Metrology). The proposed changes will focus more on bonded wafers (vs. single wafers) and correcting references to standards that have been superseded. Victor also requested access to view SEMI HB1 (*Specifications for Sapphire Wafers Intended for Use for Manufacturing High Brightness-Light Emitting Diode Devices*) as this may be included in the list of referenced Standards. The ballot is expected to be submitted for the Cycle 6, 2014 voting period.

Rich Allen pointed out that the #5616 SNARF was initially for line item revisions to SEMI 3D4. However, the TF determined that the expected changes exceeded the limitations of a line item ballot; therefore the SNARF will be revised from a line item to a major revision ballot of 3D4.

Finally, the TF also plans to submit Ballot 5506 (New Standard: *Guide for Measuring Warp, Bow and TTV on Silicon and Glass Wafers Mounted on Wire Grids by Automated Non-Contact Scanning using Laser Scanning Interferometry*) for the Cycle 6, 2014 voting period.

**Action Item:** 2014Jul #02, Dave Read to draft a SNARF for the new Auxiliary Information document related to the SNARF #5270 activity for GCS approval.

**Action Item:** 2014Jul #03, Paul Trio to arrange for access to SEMI HB1 for Victor Vartanian (SEMATECH).

**Action Item:** 2014Jul #04, Paul Trio to send editable version of SNARF #5616 to Victor Vartanian (SEMATECH).

### 7.3 Thin Wafer Handling Task Force

Rich Allen reported that the TF is drafting a SNARF on new activities.

**Action Item:** 2014Jul #05, Rich Allen and Victor Vartanian to contact Steve Olson regarding Thin Wafer TF participation.

## 8 Old Business

### 8.1 Action Items from previous meeting:

Item #	Assigned to	Action Item	Status
2014Apr #01	Len Perroots	Contact Japan committee members to better understand their issues surrounding 5173.	Completed. Closed.
2014Apr #02	Rich Allen, Paul Trio	Submit a Publication Improvement Proposal (PIP) Form to provide a better R1-1 figure in Document 5694 for co-chair approval.	Completed. Closed
2013Jul #02	Paul Trio	Remind Rich Allen to look into renaming the Thin Wafer Handling Task Force to Thin Wafer Task Force then form appropriate working groups focusing on various areas (e.g., Handling WG, Shipping WG).	Open

## 9 New Business

### 9.1 Survey on 3D-IC Packaging Standardization Gaps

Paul Trio reported that IPC, JEDEC, and SEMI are developing a survey on 3D-IC packaging standardization gaps. He presented the latest survey draft to the committee for inputs:

- **Background:** In order to address current technical issues and infrastructure challenges for the development of 3D-IC packaging, a coordinated and collaborative effort is needed among different entities in the supply chain.

Based on initial surveys conducted and industry review multiple technical issues were noted.

As end users and developers in this field, we are asking for your help in prioritizing these gaps, in 3D packaging standards development. In turn, organizations including IPC, SEMI and JEDEC could organize industry discussions and help in the development of standards in this area.

Kindly complete the attached survey to help us understand the priorities where standardization would benefit 3D packaging development. In the past, interposers were made from silicon. Glass can be used as an alternative material with its specific physical and thermal properties. However, no specification or description of requirements for such glass interposers exists. This planned work aims to close the gap. Some of the work may replicate work done for silicon interposers, but some of it will be specific for glass.

#### 1. What of the areas below are your biggest challenges with 3D Component Packaging development?

Design/CAD areas | Processing | Assembly | Inspection/metrology | TSV Technology | Thermal Management | ESD Protection | Supply Chain Management | Test | Yield | Reliability | Cost

Others: Please list and rank

Comments: Please provide additional information as needed.



2. *Which of the issues listed below were most important to address in test?*

- Copper Pillar: Bump pitch (80um to 150um) - probe test solutions
- uBump: Bump pitch (30um to 80um) - probe test solutions
- Test strategies for Probe forces on thin wafers
- Probing microbumps cost reduction

Others: Please list and rank

Comments: Please provide additional information as needed

3. *Which of the issues listed below were most important to address in inspection/metrology?*

TSV voids | defect mapping | Microbump | Coplanarity (Bump height) | Coplanarity (Thin Wafer warpage) | Underfill voids (3D stacked dies) | Bridging (3D Stacked dies)

Others: Please list and rank

Comments: Please provide additional information as needed.

4. *Which of the issues listed below were most important to address in TSV (Through Silicon Via)?*

Keep out area | fill materials | dimensions (reliability) | dimensions (cost/yield) |

Others: Please list and rank

Comments: Please provide additional information as needed.

5. *Which of the issues listed below were most important to address in materials used in assembly?*

- SIR / EM for materials in emerging PoP (Package on Package) structures and high field strength (fine-pitch) 2.5D and 3D structures
- MUF (Molded Underfill) compatibility with no-clean fluxes
- Development of fast curing NCP (non-conductive paste) with good adhesion, reliability and wetting in Thermocompression (TCB) Bonding for copper pillars.
- Development of lower viscosity NCP with longer staging time at pre-heat zone (which stays in 'B-stage' longer)
- Development of NCF(non-conductive film) adhesive materials with good adhesion, reliability and wetting in Thermocompression (TCB) Bonding for copper pillars.

Others: Please list and rank

Comments: Please provide additional information as needed.

6. *Which of the issues listed below were most important to address in terms of cost and/or yield?*

- BSI (Backside Integration) Cost and Yield
- Interposer cost
- TCB (Thermocompression Bonding) assembly process mass production capability and yield
- Temporary Bonding/Debonding : thin wafer handling process cost, cycle time
- Outgassing at temporary bonding

Others: Please list and rank

Comments: Please provide additional information as needed.

7. *Which specific existing standard/ guidelines needs the most work to develop/ update?*

List standard/guideline number and title:

Comments: Please provide additional information as needed.



8. Which standard/guidelines which do not exist today needs to be developed?

List proposed standard/guidelines:

Comments: Please provide additional information as needed.

9. Indicate your contact name, company, email address, and telephone number below so we can provide a summary of the survey after completion as well as providing information on follow on discussions in this area.

10. Please provide any other comments in the space below.

The survey will be deployed in late-Summer/early-Fall 2014. It will be sent to 3D-IC key stakeholders, 3D-IC Standards committee members, and other interested parties.

**Action Item:** 2014Jul #06, Yaw Obeng to provide university contacts for 3D-IC packaging standardization gaps survey.

**Action Item:** 2014Jul #07, Paul Trio to send 3D-IC packaging gaps survey form to global 3D-IC committee members for feedback.

**Attachment:** 08, Survey on 2.5D-3D Component Packaging

### 9.2 Upcoming New SEMI Standards Regulations on Document Development Project Period

Chris Moore informed the committee of upcoming new SEMI Standards Regulations related to the project period for Draft Document development. The key items are as follows:

- Standard Document Development Project Period shall not exceed three years.
- Exception
  - If the document development activity is found to be continuing, but cannot be completed within the three-year project period, the TC Chapter may grant this one-year extension.
- Draft changes have been completed and are to be included in the next Regs/PG revisions

### 9.3 Upcoming Ballots

#	Type	SC/TF/WG	Details
5270	Cycle 5 or 6, 2014	Inspection & Metrology TF	New Standard: Guide for Measuring Voids in Bonded Wafer Stacks
5506A	Cycle 5 or 6, 2014	Inspection & Metrology TF	New Standard: Guide for Measuring Warp, Bow and TTV on Low Stiffness Wafers

### Submission for 3DS-IC GCS Approval

The following items will be submitted to the 3DS-IC Global Coordinating Subcommittee (GCS) for review and approval:

#### *Document 5173E Reballot*

Additional discussion will be needed on how to best structure the 5173F (New Standard: Guide for Describing Silicon Wafers for Use in a 300 mm 3DS-IC Wafer Stack) document since it will require SEMI M1 to implement. The intent is that requirements/values unique to Document 5173 will be provided; otherwise, users will be referred to M1. Once the appropriate approach has been identified, GCS approval will requested accordingly.



*Auxiliary Information related to SNARF #5270*

The Inspection & Metrology TF intends to develop an auxiliary document related to the SNARF # 5270 (New Standard: Guide for Measuring Voids in Bonded Wafer Stacks) activity. The TF will prepare a SNARF for the Auxiliary Information to submit for GCS approval.

*SNARF #5616 Revision*

The Inspection & Metrology TF intends to update the #5616 SNARF from a line item revision of SEMI 3D4 (Guide for Metrology for Measuring Thickness, Total Thickness Variation (TTV), Bow, Warp/Sori, and Flatness of Bonded Wafer Stacks) to a major revision of SEMI 3D4. The TF will prepare the revised SNARF to submit for GCS approval.

## **10 Action Item Review**

### *10.1 Open Action Items*

Paul Trio (SEMI) reviewed the open action items. These can be found in the Open Action Items table at the beginning of these minutes.

### *10.2 New Action Items*

Paul Trio (SEMI) reviewed the new action items. These can be found in the New Action Items table at the beginning of these minutes.

## **11 Next Meeting and Adjournment**

The next meeting of the North America 3DS-IC committee is scheduled for Tuesday, November 4 in conjunction with the NA Standards Fall 2014 Meetings in San Jose, California. The tentative schedule is provided below:

North America Standards Fall 2014 Meetings  
November 3-6, 2014  
SEMI Headquarters  
3081 Zanker Road  
San Jose, California 95134  
U.S.A.

Tuesday, November 4

- Inspection & Metrology Task Force (8:00 AM to 10:00 AM)
- Bonded Wafer Stacks Task Force (10:00 AM to 12:00 Noon)
- Thin Wafer Handling Task Force (1:00 PM to 3:00 PM)
- NA 3DS-IC Committee (3:00 PM to 5:00 PM)

Having no further business, a motion was made to adjourn the NA 3DS-IC Committee meeting at SEMICON West 2014. Adjournment was at 5:05 PM.



**Respectfully submitted by:**

Paul Trio  
Senior Manager, Standards Operations  
SEMI North America  
Phone: +1.408.943.7041  
Email: ptrio@semi.org

**Minutes approved by:**

Richard Allen (NIST), Co-chair	
Chris Moore (BayTech-Resor), Co-chair	
Sesh Ramaswami (Applied Materials), Co-chair	Not present
Urmi Ray (Qualcomm), Co-chair	Not present

**Table 8 Index of Available Attachments #1**

#	<i>Title</i>	#	<i>Title</i>
1	SEMI Standards Required Meeting Elements	5	Ballot Review for Doc. 5173E
2	NA 3DS-IC Spring 2014 Meeting (April 1) Minutes	6	Ballot Review for Doc. 5447A
3	SEMI Standards Staff Report	7	Ballot Review for Doc. 5506
4	Japan 3D-IC Report	8	Survey on 2.5D-3D Component Packaging

#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](http://www.semi.org). For additional information or to obtain individual attachments, please contact Paul Trio at the contact information above.