

## North America Microlithography Committee Meeting Summary and Minutes

NA Standards SEMICON West 2013 Meetings  
Tuesday, July 9th, 2013  
9:30 AM – 11:30 AM (PST)  
San Francisco Marriott Marquis Hotel in San Francisco, California

### Next Committee Meeting

The next NA Microlithography Committee meeting will be held at the San Francisco Marriott Marquis Hotel in conjunction with SEMICON West 2014 on July 8-11, 2014 in San Francisco, California. The meeting date, time, and room are to be determined and subject to change.

The latest schedule and meeting details will be updated at the SEMI Standards Calendar of Events:  
<http://www.semi.org/en/Standards/CalendarEvents>

### Table 1 Meeting Attendees

*Italics indicate virtual participants*

**Co-Chairs:** Wes Erck (Wes Erck & Associates), Rick Silver (NIST)

**SEMI Staff:** Michael Tran

| <i>Company</i>        | <i>Last</i> | <i>First</i> | <i>Company</i> | <i>Last</i> | <i>First</i> |
|-----------------------|-------------|--------------|----------------|-------------|--------------|
| Synopsys              | Gookassian  | John         |                |             |              |
| U.A. Associates       | Hartsough   | Larry        |                |             |              |
| Wes Erck & Associates | Erck        | Wes          | SEMI NA        | Tran        | Michael      |

### Table 2 Leadership Changes

None.

### Table 3 Ballot Results

None.

### Table 4 Authorized Activities

None.

### Table 5 Authorized Ballots

None.

### Table 6 New Action Items

| <i>Item #</i> | <i>Assigned to</i> | <i>Details</i>  |
|---------------|--------------------|---|
| 2013Jul#01    | Thomas Germer      | Thomas Germer (NIST) to ask Rick Silver to disband the TF.  |
| 2013Jul#02    | Wes Erck           | Wes Erck to work with John Gookassian for a BNF sample of the XML.  |
| 2013Jul#03    | Michael Tran       | Michael Tran to ask if SEMI P24 has been downloaded with in the last 6 years and follow up with John Gookasian and Wes Erck to if See if anyone is using SEMI P24 could help update it. |
| 2013Jul#04    | Michael Tran       | Michael Tran to contact John Zimmerman and Long He about updating SEMI P5.  |

**Table 7 Previous Meeting Actions Items**

| <i>Item #</i> | <i>Assigned to</i> | <i>Details</i>  | <i>Status</i>                     |
|---------------|--------------------|---|-----------------------------------|
| 2013Feb#01    | Wes Erck           | Work with David Bouldin on some of the inputs received from Justin Benore for documents 5120, 5121, 5122, 5123, 5124, and 5125. | Open                              |
| 2013Feb#02    | Michael Tran       | Send Wes Erck and John Gookassian documents 5121, 5124, 5125, 5126, and 5127 for their review.                                  | Open                              |
| 2013Feb#03    | Michael Tran       | Ask Thomas Germer to ask Rick silver whether to keep the TF   | Open                              |
| 2013Feb#04    | Pawitter Mangat    | See if someone from GLOBALFOUNDRIES has any suggestions for new syntax to be implemented in the P10 XML schema files.           | Open                              |
| 2013Feb#05    | Pawitter Mangat    | Will review SEMI P34 (Square Photomask Substrates) with others to see if it should be revised or reapproved.                    | Open                              |
| 2013Feb#06    | Michael Tran       | Send Wes Erck and Rick Silver the committee reviewed document list for 5 year review.   | Done.                             |
|               |                    |   |                                   |
| 2012Jul#02    | Michael Tran       | Work with Wes Erck on documents needing five years reviews.   | OPEN, ongoing                     |
|               |                    |   |                                   |
| 2011Jul #01   | Wes Erck           | Work with Justin Benore (MGC Pure Chemicals America) on inputs submitted for ballots (5120, 5121, 5122, 5123, 5124, and 5125).  | OPEN, see Action Item: 2013Feb#01 |
| 2011Jul #02   | Wes Erck           | Work with John Gookassian (Synopsis) on inputs submitted for ballots (5121, 5124, 5125, 5126, and 5127).                        | OPEN, see Action Item: 2013Feb#02 |
| 2011Jul #04   | Rick Silver        | Ask Thomas Germer (NIST) about the current status of the Standards for Scatterometry TF.  | OPEN, see Action Item: 2013Feb#03 |

## 1 Welcome, Reminders, and Introductions

1.1 Wes Erck (Wes Erck & Associates), committee co-chair, called the meeting to order at 10:09 AM PST. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves.

**Attachment:** 01, Required Meeting Elements

## 2 Review of Previous Meeting Minutes

2.1 The committee reviewed the minutes of the previous meeting.

**Motion:** To approve the previous meeting minutes from SEMICON West 2012 as written.

**By / 2<sup>nd</sup>:** John Gookassian (NIST) / Larry Hartsough (U.A. Associates)

**Discussion:** None.

**Vote:** 3-0 in favor. Motion passed.

**Attachment:** 02, Previous Meeting Minutes (SPIE 2013)

### 3 Liaison Reports

#### 3.1 Japan Micropatterning Committee

3.1.1 Michael Tran (SEMI N.A.) gave the Japan Micropatterning Committee Report. The key items were as follows:

- Iwao Higashikawa (Toshiba) stepped down as committee co-chair
  - Morihisha Hoga (DNP) will take over as co-chair August 28, 2013
- Meeting Information
  - The last meeting was April 09, 2013 during Japan Spring Meetings 2013 at SEMI Japan, Tokyo, Japan
  - The next meeting will be August 28, 2013 during Japan Summer Meetings 2013 at SEMI Japan, Tokyo, Japan
- Ballot Results
  - Passed committee review
    - Doc.#5535, Reapproval of SEMI P35-1106, Terminology for Microlithography Metrology
    - Doc.#5536, Reapproval of P36-1108, Guide for Magnification Reference for Critical Dimension Measurement for Scanning Electron Microscopes (CD-SEMS)
- Mask Data Format for Mask Tools TF
  - The TF is drafting document #5229, Revision to SEMI P44, *Specification for Open Artwork System Interchange Standard (OASIS) Specific to Mask Tools*
- SEMI Japan Micropatterning contact, Naoko Tejima, SEMI Japan ([ntejima@semi.org](mailto:ntejima@semi.org))

**Attachment:** 03, Japan Micropatterning Report (West 2013)

#### 3.2 SEMI Staff Report

3.2.1 Michael Tran (SEMI NA) gave the SEMI NA Staff Report. The key items were as follows:

- Some Upcoming SEMI Major Events
  - SEMICON Taiwan 2013 / LED Taiwan 2013
    - September 4-6, 2013 in Taipei
  - SEMICON Europa 2013 / Plastic Electronics Exhibition and Conference
    - October 8-10, 2013 Dresden, Germany
  - SEMICON Japan 2013
    - December 4-6, 2013 in Chiba
- Upcoming North America Standards Meeting
  - NA Standards Fall 2013 Meetings
    - October 28-31, 2013 in San Jose and Santa Clara, California
    - Inviting local companies willing and able to host some of the meetings to maintain one-week format
- Cycle 6-2013 Critical Dates for SEMI Standards Ballots

- Cycle 6, 2013
  - Ballot Submission Date: August 15, 2013
  - Voting Period Starts: August 29, 2013
  - Voting Period Ends: September 30, 2013
- SEMI Standards Publications
  - Standards published from April 2013 to June 2013:
    - New Standards: 16
    - Revised Standards: 11
    - Reapproved Standards: 15
    - Withdrawn Standards: 0
  - There are a total of 887 SEMI Standards in portfolio and that includes 94 Inactive standards
- SEMI N.A. Standards staff contact: Michael Tran, mtran@semi.org

**Attachment:** 04, SEMI North America Standards Staff Report (West 2013)

#### 4 Ballot Review

None.

#### 5 Subcommittee & Task Force Reports

##### 5.1 *Terminology of Metrology TF*

5.1.1 Wes Erck reported Jim Potzick, the TF leader would like to keep it open.

##### 5.2 *Standards for Scatterometry TF*

5.2.1 Wes Erck reported Thomas Germer (NIST) to ask Rick Silver to disband the TF.

**Action Item:** 2013Jul#01, Thomas Germer (NIST) to ask Rick Silver to disband the TF.

##### 5.3 *Extreme Ultraviolet (EUV) Mask TF*

5.3.1 No update was given.

##### 5.4 *Mask Orders (P10) TF*

5.4.1 Wes Erck reported for the TF. The TF submitted a SNARF (#5561) to revise SEMI P10 since the last update. The TF still needs a volunteer from the foundry side to help with XML schema files for the P10 syntax. Wes Erck will work with John Gooskassian (Synopsis) to translate a handwritten sample of the P10 syntax to the Backus-Naur Form (BNF). The BNF will then be used to translate the P10 syntax to XML.

**Action Item:** 2013Jul#02, Wes Erck to work with John Gookassian for a BNF sample of the XML.

##### 5.5 *Data Path TF*

5.5.1 No update was given.

## 5.6 Extreme Ultraviolet (EUV) Fiducial Mark TF

5.6.1 No update was given.

## 6 Old Business

### 6.1 Five-Year Review

6.1.1 Michael Tran (SEMI NA) presented to the committee a list of documents that were due for 5 year review. The committee reviewed the list and provided that status of each document:

| <i>Document</i>                  | <i>Title</i>  | <i>Status</i>   |
|----------------------------------|---|---|
| SEMI P1-0708E                    | Specification for Hard Surface Photomask Substrates   | Wes to ask around. A candidate to be inactive.  |
| SEMI P2-0308                     | Specification for Chrome Thin Films for Hard Surface Photomasks   | Send to Potzick. Wes working on it too.   |
| SEMI P3-0308                     | Specification for Photoresist/E-Beam Resist for Hard Surface Photoplates  | Maybe inactive.   |
| SEMI P5-0704                     | Specification for Pellicles   | John Z./Long He see if there should be more work done for EUV. Wes said it's fine for older technology. |
| SEMI P6-88<br>(Reapproved 0707)  | Specification for Registration Marks for Photomasks   | Inactive maybe.   |
| SEMI P11-0308                    | Test Method for Determination of Total Normality for Alkaline Developer Solutions   | Inactive. No support.   |
| SEMI P12-0997                    | Determination of Iron, Zinc, Calcium, Magnesium, Copper, Boron, Aluminum, Chromium, Manganese, and Nickel in Positive Photoresists by Inductively Coupled Plasma Emission Spectroscopy (ICP)                                | Ballot Failed in 2011. Inactive.  |
| SEMI P13-91<br>(Reapproved 1104) | Determination of Sodium And Potassium in Positive Photoresists by Atomic Absorption Spectroscopy  | Ballot Failed in 2011. Inactive at West 13.   |
| SEMI P14-0997                    | Determination of Tin in Positive Photoresists by Graphite Furnace Atomic Absorption Spectroscopy  | Ballot Failed in 2011. Inactive at West 13.   |
| SEMI P15-92<br>(Reapproved 1104) | Determination of Sodium and Potassium in Positive Photoresist Metal Ion Free (MIF) Developers by Atomic Absorption Spectroscopy   | Ballot Failed in 2011. Inactive at West 13.   |
| SEMI P16-92<br>(Reapproved 1104) | Determination of Tin in Positive Photoresist Metal Ion Free (MIF) Developers by Graphite Furnace Atomic Absorption Spectroscopy   | Ballot Failed in 2011. Inactive at West 13  |
| SEMI P17-92<br>(Reapproved 0299) | Determination of Iron, Zinc, Calcium, Magnesium, Copper, Boron, Aluminum, Chromium, Manganese, and Nickel in Positive Photoresist Metal Ion Free (MIF) Developers by Inductively Coupled Plasma Emission Spectroscopy (ICP) | Ballot Failed in 2011. Inactive at West 13.   |

| <i>Document</i>                    | <i>Title</i>   | <i>Status</i>   |
|------------------------------------|--|---|
| SEMI P18-92<br>(Reapproved 1104)   | Specification for Overlay Capabilities of Wafer Steppers                             | Forward the document to Rick Silver. Need someone to help define the verbiages in the document and supply a suitable drawing.         |
| SEMI P19-92<br>(Reapproved 0707)   | Specification for Metrology Pattern Cells for Integrated Circuit Manufacture         | Rich Allen and Rick looking at it.  |
| SEMI P24-94<br>(Reapproved 1104)   | CD Metrology Procedures  | Ask David Bouldin (co-chair Metrics committee) to help revise it or adjust the scope. John Gookasian and Wes Erck will work with him. |
| SEMI P28-96<br>(Reapproved 0707)   | Specification for Overlay-Metrology Test Patterns for Integrated-Circuit Manufacture | Rick looking and deciding inactive or not.  |
| SEMI P34-0200<br>(Reapproved 0707) | Specification for 230 mm Square Photomask Substrates                                 | Pawitter will send and forward to some others to see if it should be revised or reapproved.   |
| SEMI P35-1106                      | Terminology for Microlithography Metrology   | Japan reapproved it. Waiting to be published.   |
| SEMI P39-0308                      | Specification for Open Artwork System Interchange Standard (OASIS)                   | Send to Tom Grebinski. Let him know it has to be balloted for reapproval.   |

**Action Item:** 2013Jul#03, Michael Tran to ask if SEMI P24 has been downloaded with in the last 6 years and follow up with John Gookasian and Wes Erck to if See if anyone is using SEMI P24 could help update it.

**Action Item:** 2013Jul#04, Michael Tran to contact John Zimmerman and Long He about updating SEMI P5.

## 7 New Business

7.1 *None.*

## 8 Action Item Review

### 8.1 *Open Action Items*

8.1.1 Michael Tran (SEMI) 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) 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 NA Microlithography Committee meeting will be held at the San Francisco Marriott Marquis Hotel in conjunction with SEMICON West 2014 on July 8-11, 2014 in San Francisco, California. The meeting date, time, and room are to be determined and subject to change.

The latest schedule and meeting details will be updated at the SEMI Standards Calendar of Events:  
<http://www.semi.org/en/Standards/CalendarEvents>

9.2 Having no further business, a motion was made to adjourn the NA Microlithography committee meeting on July 9th, 2013.

Respectfully submitted by:

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

Minutes approved by:

|  |  |
|--|--|
| Wes Erck (Wes Erck & Associates), Co-chair |  |
| Rick Silver (NIST), Co-chair               |  |

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

| #  | Title                                | #  | Title  |
|----|--------------------------------------|----|--|
| 01 | Required Meeting Elements            | 03 | Japan Micropatterning Report (West 2013)         |
| 02 | Previous Meeting Minutes (SPIE 2013) | 04 | North America Standards Staff Report (West 2013) |

#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 Michael Tran at the contact information above.