Record of Letter Ballot Review by TC Chapter for Procedural Review

Region/Locale: North America
Global Technical Committee: Micropatterning
TC Chapter Cochairs: Bryan Barnes/NIST, Wes Erck/OASIS Tooling
Standards Staff: Kevin Nguyen

	Scheduled in Background Statement	Actual
Date	11/8/2016	11/8/2016
Location	SEMI HQ, San Jose, CA	SEMI HQ, San Jose, CA
Reason for Change of Date and/or Location (if changed)		

Note: See *Regulations* ¶ 9.5 Exception for allowable reason to change.

I. Document Number and Title

Document Number	Document Title
6040	Line-Item Revision to SEMI P44-0316 SPECIFICATION FOR OPEN ARTWORK SYSTEM INTERCHANGE STANDARD (OASIS®) SPECIFIC TO MASK TOOLS
Line Item 1	Make the changes to the tables listed.

Line Item 1 Adjudication

II. Tally

Standards staff to fill in.

Voting Tally: As-cast tally after close of voting period

Note: A minimum of 60% of the Voting Interests that have TC Members within the global technical committee that issued the Letter Ballot must return Votes. (*Regulations* ¶ 9.7.1.1)

Voting Tally (with example values):

Voting Interest:	Returned Votes		Distribution		Return Rate		
Letter Ballot	25	÷	41	=	61.0%	≥60%	
Intercommittee Ballot	11						
Voting Interest Reject(s)	1			Total Voters with Rejects		1	
Voting Interest Accept(s)	17						

Note: See *Regulations* § 3.2.1 for definition of Voting Interest.

III. Rejects

Voting Interest Reject 1 (Voting Interest Name: ASML)
Voter Reject 1 (Voter: John Zimmerman/ASML)
Negative 1

<table>
<tr>
<td rowspan="4">Negative</td>
<td rowspan="2">Referenced Section/ Paragraph</td>
<td>*TF/TC Chapter to fill in, including text in the ballot if necessary.</td>
<td></td>
</tr>
<tr>
<td>'Line Item 1: Make the changes to the tables listed'</td>
<td></td>
</tr>
<tr>
<td rowspan="2">Negative Text</td>
<td>Not a valid line item revision. There are no changes stated. The 'revision' indicates that there are multiple changes in the table. However, a line item ballot should only contain one change per line item.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</table>

TF input (optional)			

<table>
<tr>
<td rowspan="2">Withdrawal (check one)</td>
<td></td>
<td colspan="2">No Negative withdrawal made by Voter.</td>
<td>GO TO "Related" subsection</td>
</tr>
<tr>
<td>x</td>
<td colspan="2">Withdrawal document received by Standards staff on 10/15/2016.</td>
<td>GO TO "Final" subsection → (A)</td>
</tr>
<tr>
<td rowspan="7" style="writing-mode:vertical-lr">Final</td>
<td rowspan="6">(check if applicable)</td>
<td>x</td>
<td>(A)</td>
<td colspan="2">Withdrawn (counted under h in disposition)</td>
</tr>
<tr>
<td></td>
<td>(B)</td>
<td colspan="2">Not related (counted under i in disposition)</td>
</tr>
<tr>
<td></td>
<td>(C)</td>
<td colspan="2">Related and not persuasive (significant)</td>
</tr>
<tr>
<td></td>
<td>(D)</td>
<td colspan="2">Not significant (counted under j in disposition)</td>
</tr>
<tr>
<td></td>
<td>(E)</td>
<td>Related and persuasive and not addressed by technical change</td>
<td>DOCUMENT FAILS</td>
</tr>
<tr>
<td></td>
<td>(F)</td>
<td colspan="2">Addressed by technical change (counted under k disposition)</td>
</tr>
<tr>
<td>(check if applicable)</td>
<td></td>
<td colspan="3">Comment generated. See Section V-(ii) Comment # X.</td>
</tr>
</table>

Disposition of Voting Interest Reject 1

Check only when the Document has not been failed.

1	Original number (#) of Negatives	**(g)**
1	Number of Negatives withdrawn	**(h)**

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#	Number of Negatives found not related		**(i)**
#	Number of Negatives found not significant		**(j)**
#	Number of Negatives addressed by technical change **(Negative becomes not significant)**		**(k)**

Final	x	**g** - (**h** + **i** +**j** + **k**) = 0	**Reject is Not Valid and is not included in the denominator of § VI.** *Approval Conditions Check*
		g - (**h** + **i** +**j** + **k**) >0	**Reject is included in the denominator of § VI.** *Approval Conditions Check*
		Reject without a Negative	**Not Valid**

Note: If all of the Negatives included with a Reject Vote are withdrawn, determined to be not related, or determined to be not significant, the Reject Vote is not valid. (*Regulations*** ¶ 9.4.3.3)**
Note: A Negative addressed by a technical change is automatically considered to be not significant. (*Regulations*** ¶ 9.6.4.4.2)**

IV. Other Technical Issues
None

V. Comments

V- (i) Voters' Comments

Commenter 1 (Asturias, Mike / Intel) - Comment 1

Comment	***TF/TC Chapter to fill in section/paragraph #, if necessary.**			
	64 bit min. value is missing the ' ' sign in several places.			
Action	**The TC Chapter agreed to do one of the following actions.**			
	*No motion is required in this step.			
		Already addressed by Commenter #, Comment #		
		No further action was taken by the TC Chapter.		
		Refer to the TF for more consideration.		
		New Business		
	x	Editorial Change		
		Options for editorial change **(check one)**	x	**Case 1: No vote in this section:**
				To be included and voted on as a group in § VI. *Editorial Changes Other than Those Voted on in § V.*
				Case 2: Voted in this section:
				Original section number and at least one full sentence are required in "FROM" and "TO" fields.

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Commenter 2 (LoPresti, Patrick /KLA-Tencor) - Comment 1

<table>
<tr><td rowspan="5">Comment</td><td colspan="4">*TF/TC Chapter to fill in section/paragraph #, if necessary.</td></tr>
<tr><td colspan="4">There are small typos for the changes in Table 2 No. 12 and 13, Table 3 No. 2, and Table 4 No. 13. All of these have the new 'min' column as 2^63, but it should be -2^63.</td></tr>
</table>

			Case 1: No vote in this section:

The TC Chapter agreed to do one of the following actions.

*No motion is required in this step.

		Already addressed by Commenter #, Comment #	
		No further action was taken by the TC Chapter.	
		Refer to the TF for more consideration.	
		New Business	
	x	Editorial Change	

Options for editorial change **(check one)**	x	**Case 1: No vote in this section:** To be included and voted on as a group in § VI. *Editorial Changes Other than Those Voted on in § V.*
		Case 2: Voted in this section: Original section number and at least one full sentence are required in "FROM" and "TO" fields.

Commenter 3 (Suzuki, Toshio /DNP) - Comment 1

*TF/TC Chapter to fill in section/paragraph #, if necessary.

There are typos for the minimum value in the following table.

Table 2, No.12 (x,y)
Table 2, No.13 (x,Y)
Table 3, No.2 (Coordinate Values)
Table 4, No.13 (Localization area)

'2**63' should be ' 2**63'. Minus(' ') is missing.

The TC Chapter agreed to do one of the following actions.

*No motion is required in this step.

	Already addressed by Commenter #, Comment #	
	No further action was taken by the TC Chapter.	
	Refer to the TF for more consideration.	
	New Business	
x	Editorial Change	

Options for editorial	x	**Case 1: No vote in this section:** To be included and voted on as a group in § VI. *Editorial Changes Other than Those Voted on in § V.*

		Case 2: Voted in this section:
change **(check one)**		**Original section number and at least one full sentence are required in "FROM" and "TO" fields.**

Commenter 4 (Iida, Mitsuhide /JEOL) - Comment 1

Comment	***TF/TC Chapter to fill in section/paragraph #, if necessary.**
	comment_for_6040. pdf
Action	**The TC Chapter agreed to do one of the following actions.**
	*No motion is required in this step.
	Already addressed by Commenter #, Comment #
	No further action was taken by the TC Chapter.
	Refer to the TF for more consideration.
	New Business
x	Editorial Change

			Case 1: No vote in this section:
	Options for editorial change **(check one)**	x	**To be included and voted on as a group in § VI. *Editorial Changes Other than Those Voted on in § V.***
			Case 2: Voted in this section:
			Original section number and at least one full sentence are required in "FROM" and "TO" fields.

Commenter 5 (Gookassian, John / Synopsys) - Comment 1

Comment	***TF/TC Chapter to fill in section/paragraph #, if necessary.**
	Minus sign is missing in number of places in the Minimum column for signed 64 bit parameters.
Action	**The TC Chapter agreed to do one of the following actions.**
	*No motion is required in this step.
	Already addressed by Commenter #, Comment #
	No further action was taken by the TC Chapter.
	Refer to the TF for more consideration.
	New Business
x	Editorial Change

			Case 1: No vote in this section:
		x	

	Options for editorial change (check one)		To be included and voted on as a group in § VI. *Editorial Changes Other than Those Voted on in § V.*
			Case 2: Voted in this section:
			Original section number and at least one full sentence are required in "FROM" and "TO" fields.

Commenter 6 (Hamaji, Masakazu / NCS) - Comment 1

<table>
<tr><td rowspan="2">Comment</td><td colspan="3">*TF/TC Chapter to fill in section/paragraph #, if necessary.</td></tr>
<tr><td colspan="3">Fix minimum values from 2**63 to   -2**63.</td></tr>
<tr><td rowspan="11">Action</td><td colspan="3">The TC Chapter agreed to do one of the following actions.</td></tr>
<tr><td colspan="3">*No motion is required in this step.</td></tr>
<tr><td></td><td colspan="2">Already addressed by Commenter #, Comment #</td></tr>
<tr><td></td><td colspan="2">No further action was taken by the TC Chapter.</td></tr>
<tr><td></td><td colspan="2">Refer to the TF for more consideration.</td></tr>
<tr><td></td><td colspan="2">New Business</td></tr>
<tr><td>x</td><td colspan="2">Editorial Change</td></tr>
<tr><td rowspan="4">Options for editorial change (check one)</td><td rowspan="2">x</td><td>Case 1: No vote in this section:</td></tr>
<tr><td>To be included and voted on as a group in § VI. *Editorial Changes Other than Those Voted on in § V.*</td></tr>
<tr><td></td><td>**Case 2: Voted in this section:**</td></tr>
<tr><td></td><td>Original section number and at least one full sentence are required in "FROM" and "TO" fields.</td></tr>
<tr><td colspan="2">**Vote**</td><td colspan="2">XX **Y**-XX **N**; Motion passed/failed.</td></tr>
</table>

Commenter 7 (Grebinski, Thomas / YottaData) - Comment 1

<table>
<tr><td rowspan="3">Comment</td><td colspan="2">*TF/TC Chapter to fill in section/paragraph #, if necessary.</td></tr>
<tr><td colspan="2">Table 3, Item 2 has a typographical error. The strike outs should not be there for the original values. They should remain as they have been for all cells but the top cell; 32 bit. Only the top cell should allow 64 bit coordinates. The strikeouts should be removed for the 32 bit values.</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td rowspan="5">Action</td><td colspan="2">The TC Chapter agreed to do one of the following actions.</td></tr>
<tr><td colspan="2">*No motion is required in this step.</td></tr>
<tr><td></td><td>Already addressed by Commenter #, Comment #</td></tr>
<tr><td>x</td><td>No further action was taken by the TC Chapter. (Comment was withdrawn)</td></tr>
<tr><td></td><td>Refer to the TF for more consideration.</td></tr>
</table>

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	New Business	
	Editorial Change	
Options for editorial change **(check one)**		**Case 1: No vote in this section:**
		To be included and voted on as a group in § VI. Editorial Changes Other than Those Voted on in § V.
		Case 2: Voted in this section:
		Original section number and at least one full sentence are required in "FROM" and "TO" fields.

V-(ii) Comments Created by Handling Negative

None

VI. Editorial Changes Other than Those Voted on in § V

Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

	Origin of this editorial change **(Check one)**	x	Commenter 1 / Comment 1
			Other [ ]

FROM:
Table 2 Restrictions on OASIS Record (Row 12 and 13)

No.	Record Name	Field Name	Restriction Item	Content of Restriction				
				Min.	Max.	Step	Unit	Comment
1	12 PLACEMENT	cellname-string	Cell name length	-	-	-	-	
		reference-number	Reference number	0	$2^{32}-1$	1	-	
		x, y	Coordinate value (64-bit coordinate space for top cell only)	-2^{31} 2^{63}	$2^{31}-1$ $2^{63}-1$	1	grid	
	13 TEXT	x, y	Coordinate value (64-bit coordinate space for top cell only)	-2^{31} 2^{63}	$2^{31}-1$ $2^{63}-1$	1	grid	x, y

TO: Add missing negative signs for 64-bit for minimum value
Table 2 Restrictions on OASIS Record (Row 12 and 13)

No.	Record Name	Field Name	Restriction Item	Min.	Max.	Step	Unit	Comment
		cellname-string	Cell name length	-	-	-	-	
		reference-number	Reference number	0	$2^{32}-1$	1	-	
12	PLACEMENT	x, y	Coordinate value (64-bit coordinate space for top cell only)	-2^{31} -2^{63}	$2^{31}-1$ $2^{63}-1$	1	grid	
13	TEXT	x, y	Coordinate value (64-bit coordinate space for top cell only)	-2^{31} -2^{63}	$2^{31}-1$ $2^{63}-1$	1	grid	x, y

Justification: Negative signs were omitted for 64-bit value, as they are Editorial in nature because they are obvious in light of the negative signs assigned to the 32 bit.

Origin of this editorial change **(Check one)**	**x**	Commenter(1) / Comment(s) 1
		Other [ ]

FROM:

Table 3 Restrictions On Standard Property (Row 2)

No	Level	Property Name	Restriction Item	Minimum	Maximum	Step	Unit	Comment
1	File	S_BOUNDING_BOXES_AVAILABLE	Bounding boxes available	-	-	-	-	Fixed to 2
2	Cell	S_BOUNDING_BOX	Flags	-	-	-	-	Fixed to 000 for all non-empty cells, Fixed to 010 for an empty top cell.
			Coordinate Values Note: Must not exceed a restricted 32-bit space. (64-bit coordinate space for top cell only)	-2^{31} 2^{63}	$2^{31}-1$ $2^{63}-1$	1	grid	Must be the axis-aligned and minimal area within which all points lie. Fixed to 0 only when the top cell is an empty cell.

TO: Add missing negative sign for 64-bit for minimum value.

Table 3 Restrictions On Standard Property (Row 2)

No	Level	Property Name	Restriction Item	The Content of Restriction				
				Minimum	Maximum	Step	Unit	Comment
1	File	S_BOUNDING_BOXES_ AVAILABLE	Bounding boxes available	-	-	-	-	Fixed to 2
2	Cell	S_BOUNDING_BOX	Flags	-	-	-	-	Fixed to 000 for all non-empty cells, Fixed to 010 for an empty top cell.
			Coordinate Values Note: Must not exceed a restricted 32-bit space. (64-bit coordinate space for top cell only)	-2^{31} -2^{63}	$2^{31}-1$ $2^{63}-1$	1	grid	Must be the axis-aligned and minimal area within which all points lie. Fixed to 0 only when the top cell is an empty cell.

Justification: Negative sign was omitted for 64-bit value as they are Editorial in nature because they are obvious in light of the negative signs assigned to the 32 bit.

Origin of this editorial change (Check one)	x	Commenter(1) / Comment(s) 1
		Other [ ]

3

FROM:

Table 4 Restrictions On User Property

No.	Level	Property Name	Restriction Item	The Content of Restriction				
				Minimum	Maximum	Step	Unit	Comment
13	Cell	P44_LOCALIZATION_ AREA	Localization area (lower-left-x, lower-left-y, upper-right-x, upper-right-y)	2^{63}	$2^{63}-1$	1	grid	This property must be defined when an OASIS.MASK file is localized. PLACEMENT record minimum is 1 except for the top cell which is 0 when the top cell is empty.

TO: Add missing negative sign for 64-bit for minimum value.

Table 4 Restrictions On User Property

No.	Level	Property Name	Restriction Item	The Content of Restriction				
				Minimum	*Maximum*	*Step*	*Unit*	*Comment*
13	Cell	P44_LOCALIZATION_ AREA	Localization area (lower-left-x, lower-left-y, upper-right-x, upper-right-y)	-2^{63}	$2^{63}-1$	1	grid	This property must be defined when an OASIS.MASK file is localized. PLACEMENT record minimum is 1 except for the top cell which is 0 when the top cell is empty.

Justification: Negative sign was omitted for 64-bit value as they are Editorial in nature because they are obvious in light of the negative signs assigned to the 32 bit.

Motion	To approve the above editorial change(s).
Motion by/ 2nd by	Tom Grebinski (Yotta Data Sciences)/Frank Summers (Industrial-Strength Graphics)
Discussion	XXXX
Vote	3 Y-0 N; Motion passed

VII. Approval Conditions Check

VII. - (i). Approval Rate

APPROVAL CONDITION 1: All Negatives have been discussed and were withdrawn, found not related, found not persuasive, or addressed by a technical change. (*Regulations* ¶ 9.7.1.2)

APPROVAL CONDITION 2: At least 90% of the sum of valid Voting Interest Accept and Voting Interest Reject Votes must be Accept. (*Regulations* ¶ 9.7.1.3)

Note: If both approval conditions are not satisfied, the Document fails.

		Accepts		**(Accepts + Valid Rejects)**			
Approval Rate	=	17	/	17	=	100.0%	≥90%

VII. – (ii) Approval Level (check one)

Note: See *Regulations* § 9.7.2 for further information.

X	**Globally Approved (No Ratification Ballot needed):** Line Item 1 meets the Letter Ballot approval conditions for the global technical committee.
	Need a Ratification Ballot: Line Item 1 meets the Letter Ballot approval conditions for the TC Chapter and a Ratification Ballot will be issued to validate technical changes.

Checks for Entire Document Including All Approved Line Items

VIII. Safety Check

Note: This Safety check <u>applies to the entire Standard or Safety Guideline</u> including all the approved Line Items. See § 15 of the *Regulations* for further information.

Motion	**x**	**This is not a Safety Document**, when all safety-related information is removed, the Document is still technically sound and complete. (*Regulations* ¶ 8.7.1)
		This is a Safety Document, when all safety-related information is removed, the Document is not technically sound and complete. (*Regulations* ¶ 8.7.2)
		Safety Checklist (*Regulations* ¶ 15.3) is complete and has been included with the Document throughout the balloting process. (*Regulations* ¶ 15.1.2)
Motion by/2nd by	Tom Grebinski (Yotta Data Sciences)/Frank Summers (Industrial-Strength Graphics)	
Discussion	XXXX	
Vote	3 **Y**-0 **N**; Motion passed	

IX. Intellectual Property (IP) Check

Note: This Letter Ballot may cover all or part of a Standard or Safety Guideline. This IP check applies to the entire Standard or Safety Guideline. See *Regulations* § 16 for further information.

x	The TC Chapter meeting chair asked those participating, if they were aware of any potentially material patented technology or copyrighted items* in the Standard or Guideline. (*Regulations* ¶ 8.8.1)			
	x	No potentially material patented technology or reproduction of copyrighted items is known.		GO TO SECTION X.
		Potentially material patented technology or reproduction of copyrighted items is known, but a Letter of Assurance (LOA) or copyright release letter for such items has been obtained or presented to the TC Chapter.		GO TO SECTION X.
		Potentially material patented technology or reproduction of copyrighted items is known and use of such materials is technically justified by the TC Chapter, but an LOA or copyright release letter for some of the item(s) has NOT been obtained or presented to the TC Chapter.		
Motion		Ask ISC for special permission to publish.		
		Quit activity.		
		Wait for LOA for patented technology or release of copyrighted items.		
Motion by/2nd by		Name (Company)/Name (Company)		
Discussion		XXXX		
Vote		XX Y-XX N		
Final Action		Motion passed		
		Motion failed		

* Note: Such potentially material patented technology or copyrighted items might have become known since the Standard or Safety Guideline was last reviewed, or might become relevant due to this Letter Ballot.

X. Action for This Document

Motion		Line item(s) [X], [X] and [X] passed TC Chapter review as balloted and will be forwarded to the ISC A&R SC for procedural review.
	x	Line item(s) [1] passed TC Chapter review with editorial changes and will be forwarded to the ISC A&R SC for procedural review.
		Line item(s) [X], [X] and [X] passed TC Chapter review with technical changes and with or without editorial changes and will be forwarded to the ISC A&R SC for procedural review. A Ratification Ballot will be issued to verify the technical changes.
		Line item(s) [X], [X] and [X] failed TC Chapter review and will be returned to the TF for rework.
		Line item(s) [X], [X] and [X] failed TC Chapter review and work will be discontinued.
Motion by/ 2nd by		Tom Grebinski (Yotta Data Sciences)/Bevan Wu (BW & Associates)
Discussion		XXXX
Vote		3Y-0 N
Final Action	x	Motion passed
		Motion failed

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A&R		**Approved for publication**
		Approved pending acceptance of the Ratification Ballot
		Not approved
	Reason:	