



Accelerating the next technology revolution

iEUVi Mask TWG

Organizing Committee

David Chan – SEMATECH

Long He – SEMATECH / Intel

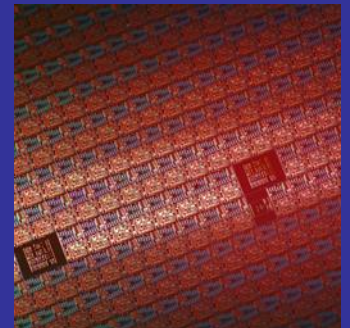
John Zimmerman – ASML

Ota Kazuya – Nikon

Markus Bender – AMTC

George Huang – UMC

San Jose, CA; Feb 12, 2012



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 - You are a Foreign National of a Restricted Country
 - You have questions about confidentiality or export requirements

Quick Introduction From Audience

- Identify your name
- Organization you represent

- Friendly Reminder: Please turn your cell phone in silent mode.

Mask TWG: Mission & Objective



- **Mission:**

Ensure EUV Mask Infrastructure Readiness for:

- Pilot Line Production 2010 – 2012
- High Volume Manufacturing 2013 - 2016

- **Objectives:**

- Identify Required Standards
- Coordinate industry-wide conversions
- Identify any gaps between current industry efforts and projected future needs
- Highlight gaps to member organizations and IEUVI Board for action

EUV Focus Areas 2007-2011: 22 nm half-pitch insertion target



2007 / 22hp	2008 / 22hp	2009 / 22hp	2010 / 22hp	2011 / 22hp
1. Reliable high power source & collector module	1. Long-term source operation with 100 W at IF and 5MJ/day	1. Mask yield & defect inspection/review infrastructure	1. Mask yield & defect inspection/review infrastructure	1. Long-term reliable source operation with 200 W at IF*
2. Resist resolution, sensitivity & LER met simultaneously	2. Defect free masks through lifecycle & inspection/review infrastructure	2. Long-term reliable source operation with 200 W at IF	1. Long-term reliable source operation with 200 W at IF	2. Mask yield & defect inspection/review infrastructure
3. Availability of defect free mask	3. Resist resolution, sensitivity & LER met simultaneously	3. Resist resolution, sensitivity & LER met simultaneously	2. Resist resolution, sensitivity & LER met simultaneously	3. Resist resolution, sensitivity & LER met simultaneously
4. Reticle protection during storage, handling and use	• Reticle protection during storage, handling and use	• EUVL manufacturing integration	• EUVL manufacturing integration	• EUVL manufacturing integration
5. Projection and illuminator optics quality & lifetime	• Projection / illuminator optics and mask lifetime			

**) This requires a 20 X improvement from current source power status*



HVM introduction in late 2013 if productivity challenge can be met

Agenda



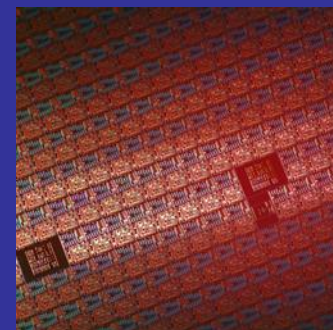
Start	Finish	Topic	Who
12:30 PM	12:45 PM	Introduction	David Chan, SMT
12:45 PM	12:55 PM	EUV blank defect mitigation using fiducial marks	Tetsu Murachi, EIDEC/Intel
12:55 PM	1:05 PM	Accuracy of EUV blank defect locationing using Teron 617 and fiducials	Uzo Okoroanyanwu, GF
1:05 PM	1:15 PM	Fiducial generation	Shoki Tsuomu, HOYA
1:15 PM	1:25 PM	Technical requirement and ebeam writer implementation plan	Yoshitake Shusuke, Nuflare
1:25 PM	1:45 PM	Fiducial mark / defect mitigation discussion	All
1:45 PM	2:00 PM	Entegris carrier status update	Tom Kielbaso, Entegris
2:00 PM	2:15 PM	Gudeng carrier status update	Chenwei Ku, Gudeng
2:15 PM	2:30 PM	DMS EUV pod clean and reticle storage tool update	Lutz Rebstock, DMS
2:30 PM	2:45 PM	Break	
2:45 PM	3:00 PM	E152 revision status update and status of action items from last TWG	Long He, SMT/Intel
3:00 PM	3:45 PM	Reticle handling discussions	All
3:45 PM	3:55 PM	EUV mask blank defect status	Vibhu Jindal, SMT
3:55 PM	4:10 PM	ML deposition tool characterization	Patrick Kearney, SMT
4:10 PM	4:25 PM	Substrate quality improvement	Teki Ranganath, SMT
4:25 PM	4:40 PM	Substrate prep for dep	Arun John, SMT
4:40 PM	4:55 PM	EUV blank discussion	All
4:55 PM	5:00 PM	Conclusion and meeting adjourns	David Chan, SMT

Note: Q & A welcome. Park most discussions in the discussion session if possible.



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Closing Remarks



Next meeting of IEUVI Mask TWG(s)



- We are looking for suggestions in tasks priorities and topics of discussions
- Inputs on meeting formats, etc. are welcome
- Schedule:
 - @ EUVL, September 2012, Brussels, Belgium
- Organizing Committee
 - David Chan – SEMATECH (david.chan@sematech.org)
 - Long He – SEMATECH / Intel (long.he@sematech.org)
 - John Zimmerman – ASML
 - Ota Kazuya – Nikon
 - Markus Bender – AMTC
 - George Huang – UMC