NDIA Trusted Microelectronics Joint Working Group

Team 2:

Trustable Leading

Edge Technology Access
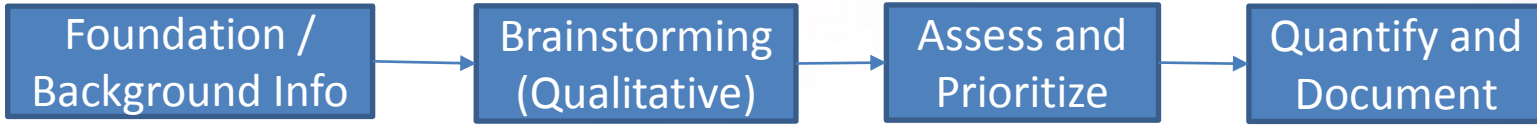
Presented by

Mr. Ezra Hall, GLOBALFOUNDRIES

at NDIA's 7th

Trusted Microelectronics Workshop

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JWG2 Team Members

	Name	Organization	
1	Brett Attaway	AIM Photonics Institute	battaway@sunypoly.edu
2	Anita Balachandra	TechVision21	abalachandra@techvision21.com
3	Gerry Borsuk	NRL	gerald.borsuk@nrl.navy.mil
4	Brad Botwin	Department of Commerce	brad.botwin@bis.doc.gov
5	James Chew	Cadence	jsbchew@cadence.com
6	Brian Cohen	IDA	bcohen@ida.org
7	Mark Crawford	Department of Commerce	mark.crawford@bis.doc.gov
8	Gerry Etzold	Etzold Technology Consulting	etztechcon@gmail.com
9	David Gottfried	Smart Systems Technology and Commercialization Center	david.gottfried@stcmems.com
10	Ezra Hall (Team Leader)	GLOBALFOUNDRIES	ezra.hall@globalfoundries.com
11	Michael James	IBM GBS	jamm@us.ibm.com
12	Doug Palmer	Booz Allen Hamilton	palmer_doug@bah.com
13	Neil Schumacher	IBM GBS	neilw@us.ibm.com
14	Paul Syers	Potomac Institute for Policy Studies	psyers@potomacinstitute.org
15	Vashisht Sharma	Institute for Defense Analysis	vsharma@ida.org

(1) What are the potential consequences of the Chinese Government's substantial global semiconductor investments to the U.S. commercial and defense microelectronics industrial base?

(2) What are the economic and national security implications of losing access to reliable U.S. and non-U.S. foundries, manufactured components, equipment, intellectual property, and know how, for both commercial and Trusted handling levels?

(3) What actions (Industry and USG) could be taken to stabilize and sustain the U.S. defense microelectronics industrial base?

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Foundation /        →    Brainstorming      →    Assess and      →    Quantify and
Background Info           (Qualitative)           Prioritize           Document
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- **Process enables broad exploration with focus on highest value items**
- **Re-occurring meetings and face to face working session(s)**
- **Guest speakers and conference attendance to dive deeper on topics**

End to end semiconductor workflow (E2E)

| EDA Tools | Cores and IP Design | 2nd order scope | | | | | | | | Software Development | | |
| | | Design | Data Prep, Checking, Release | Mask Fabrication | Wafer Fabrication | Post Wafer Processing | Test | Packaging | System Integration | Micro-code / firmware | Operating Systems | Applications |

1st order scope (Mask Fabrication, Wafer Fabrication)

DELIVERABLES (BACKUP)

(1) What are the potential consequences of the Chinese Government's substantial global semiconductor investments to the U.S. commercial and defense microelectronics industrial base?

- Document the end to end semiconductor workflow (E2E)
- Outline worldwide commercial landscape "foundation" upon which China's investments influence
- Outline China's strategy (investment and influence) across E2E workflow elements
- Identify likely impacts of China's strategy upon this commercial E2E framework

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(2) What are the economic and national security implications of losing access to reliable U.S. and non-U.S. foundries, manufactured components, equipment, intellectual property, and know how, for both commercial and Trusted handling levels?

- Determine focus litho generations: 90nm and smaller? 32nm and smaller?
- Summarize technologies available to fabless semiconductor companies, and associated business models
- Forecast anticipated results from China's distortion of the marketplace
  - Commercial availability and business models
  - Macro economic implications
- Forecast likely results for defense microelectronics industrial base
  - "Availability" from potential suppliers in US
  - Present DoD "Access", including levels of "Trust"
  - Likely solution space post China distortion
- Security implications matrix across E2E workflow

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(3) What actions (Industry and USG) could be taken to stabilize and sustain the U.S. defense microelectronics industrial base?

- Tactical actions
  - Near term actions to increase USG "Access" to available technologies
  - Policy and procurement

- Macro economic actions
  - How could the US address the imbalance China's strategy would create?
  - How could the US influence commercial availability and access?
  - Given the growth markets are in China, India,... is there a US play that could counter the "fabs overseas" direction?
  - What urgency is there for implementation of these actions?