FAB OWNERS ALLIANCE (FOA)

Overview
SEMI CONNECTS TO
ADVANCE A GLOBAL INDUSTRY

SEMI Mission
SEMI provides industry stewardship and engages with our members to advance the interests of the global electronics manufacturing and design supply chain.

SEMI Vision
SEMI promotes the development of the global electronics manufacturing and design supply chain and positively influences the growth and prosperity of its members. SEMI advances the mutual business interests of its membership and promotes a free and open global marketplace.

SEMI Value Proposition
SEMI speeds the time-to-better business results for its members across the global electronics manufacturing and design supply chain.
SEMI BRINGS THE WORLD TO YOU

1,000+ STANDARDS
20+ TECHNOLOGY COMMUNITIES
2,300+ PROGRAM HOURS
5,000+ VOLUNTEERS
170+ PROGRAMS
2,260+ MEMBER COMPANIES
1.3 MIL PEOPLE SERVED
7 SEMICONS

GLOBAL ADVOCACY
WORKFORCE DEVELOPMENT
TECH COMMUNITIES
MARKET INTELLIGENCE
STANDARDS/EHS
THOUGHT LEADERSHIP
EXPOSITIONS/CONFERENCES

SEMI BRINGS THE WORLD TO YOU
One Membership Opens the Door to a World of Opportunities
• The FOA is a SEMI technology community that meets regularly to discuss and act on common manufacturing issues, combining strengths and resources to become more globally competitive.

• Established in 2004 as a nonprofit trade association of semiconductor & MEMS fab owners and industry suppliers with quarterly meetings and activities around the world, the FOA was integrated into SEMI in 2018.

• The group currently consists of 25+ device companies with over 120 semiconductor manufacturing facilities and 65+ suppliers to the industry.

• We are a collaboration of Fab Owner who see our fabs as the crown jewel in our companies’ competitive strategy. We believe operating our manufacturing facilities provides superior value for our customers.
# Device Maker Members

AMS  
Broadcom  
DB HiTek  
dpiX  
EMCORE Corporation  
Everspin  
GLOBALFOUNDRIES  
Honeywell  
HP Inc.  
IMT  
Infineon  
MACOM  
Micralyne Inc.  
Microchip/Microsemi  

MIT Lincoln Labs  
NXP  
ON Semiconductor  
Polar Semiconductor, Inc.  
Qorvo  
Renesas  
Sandia National Laboratories  
Seagate Technology  
SkyWater Technology  
Skyworks  
TowerJazz  
Western Digital  
X-FAB
Solution Provider Members

AKT
AMEC
Apple T
Applied Materials
Araca, Inc.
ASML
Banner Industries
BISTel America
Brooks Automation
Brumley South
Busch LLC
CNW – Courier NetWork
CollabraTech Solutions
Critical Manufacturing
DAS Environmental Expert
Ebara Technologies
Edwards Ltd.
Electronic Fluorocarbon, LLC
Entergris
Entrepix
ePAK
Eyelit, Inc.
FABMATICs
FabTime, Inc.
Genmark Automation
Hightec System
INFICON (FPS)
Keteca USA, Inc.
KLA
LAM Research
Linx Consulting
Macquarie
Mattson Technology
MAX International Engineering
MEI Wet Processing Systems & Services
Mega Kinetics Fluid Systems
MICL Inc.
Microtronic, Inc.
Mohawk Valley EDGE
Nanotronics Imaging
Nextin, Inc.
NSTAR Global Services
Odyssey Technical Solutions
OEM Group
Okmetic, Inc.
Omron
PALL Corp.
Plasma-Therm, LLC
Prudential Cleanroom Services
Revasum
Riken Keiki
Semiconductor Global Solutions
Semilab USA
Semplastics
Semsysco
Siconnex
Silicon Saxony
Sparetech
SPTS Technologies
Stoneguard (SGC) Equipment
SurplusGLOBAL
Suss MicroTec Inc.
Tanaka Kikinzoku
TEL
Telit IoT Platforms
Trymax Semiconductor
UTi IMS
Valutek
VEM
Wolseley Industrial Group
Device Maker Participating Individuals

Representative Job Titles/Roles
- Director of Wafer Fabrication
- Director of Wafer Manufacturing and Process Development
- VP, Quality & Procurement
- Senior VP Operations
- Senior Location Executive & Sr. Director
- Wafer Fabrication Site Director
- General Manager, Manufacturing
- VP Global Foundry Operations
- VP of Fab Operations
- Vice President Global Fab Operations
- Fab Manager & Sr. Director of Operations
- Vice President of Manufacturing

Study Team Contacts follow the profession that the Team Represents
Key Elements/Activities

• Key Thread = Collaboration

  • Device Maker to Device Maker → DM-only Meetings
  • Device Maker to Solution Provider → General Sessions
  • Collaborative Forum (Co-Authored (DM & SP) Case Studies)
  • Study Teams & Benchmarking
  • Fab Tours

• Ground Rule: “Give to Get”
# Meetings (Americas)

A total of 4 meetings are held annually, scheduled as follows:

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<tr>
<th>Quarter</th>
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<td>Q2</td>
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<td>Q3</td>
<td>SpeedNetworking SEMICON® West</td>
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<tr>
<td>Q4</td>
<td>Meeting at Member Fab</td>
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The schedule is distributed across the year as follows:

- **January (Q1)**: Collaborative Forum
- **February (Q2)**: Meeting at Member Fab
- **March (Q3)**: SpeedNetworking SEMICON® West
- **April (Q4)**: Meeting at Member Fab
- **May**
- **June**
- **July**
- **August**
- **September**
- **October**
- **November**
- **December**
Overview

Q1 Collaborative Forum

• 2 days – Focus on Joint Supply-Chain Solutions
  — Device makers and supply chain members present real-world challenges and the solutions they developed together

• Industry Updates
  — Market and Manufacturing Trends, Regulatory & Policy Developments, etc.

• Team Updates
  — Topical focus team deep-dives in priority areas
    • Maintenance Management, Power Quality, HR, EHS, Parts & Sub-systems Lifecycle, APC-FDC, etc. (illustrative)
Overview

Q2 & Q4 Meetings - at Member Fab

Sample Agenda

Wednesday Evening – Sponsored Reception/Dinner

**Session 1, Thu, 8:00am – Noon – (Device Makers Only)**
- Team Reports (EE&MM, Facilities, IE, EH&S, HR, Process Engineering, FDC etc.)
- Open Forum – New projects, studies, deep dives
- Member Lunch (sponsored)

**Session 2, Thu 1:00pm – 6:00pm (Solution Providers included)**
- Introductions - Member Minute
  - Host company charitable contribution
- New Member Presentations, Surveys, New Business
- Afternoon Break
- New Member Presentations, Surveys, New Business
- Fab Overview and Tour - Host Fab
- Fab Managers Feedback
- Adjourn to Post Meeting Social
Q3 Speed Networking

- At SEMICON® West in San Francisco
- Standard Device Maker AM meeting
- 10-minutes mini-meetings between Device Makers and Solution Providers in the afternoon
- Device Makers have option to choose meetings
Meetings
Networking
Study Teams

- Equipment Engineering & Maintenance Managers
- FDC
- Industrial Engineering / Production Management
- Facilities
- EH&S
- Human Resources
- Reliability benchmarking

Study Team Topic Selection – Illustrative

<table>
<thead>
<tr>
<th>Maintenance Management Systems</th>
<th>Spares</th>
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<tr>
<td>Safety Procedure</td>
<td>Support in terms of hard tool down</td>
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<td>APC FDC</td>
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<td>Alternative Sources</td>
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<td>Uptime Benchmark - M Factor</td>
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<td>Headcount Planning Models</td>
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<td>Cost Reduction - Alternative Sources</td>
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Benchmarking Fab Operations

- General – Location, Area, Tool Count, Automation
- Production - Fab Utilization, Shipments, Photo Alignments, WIP
- Cycle Time - Lot Cycle Time, Theoretical CT, Delivery Compliance, Raw Wafers Lead Time
- Technology – Technologies, Routes, Photo Layers, Metal Layers, Process Steps
- Staffing – Engineering, Maintenance, Production, Support
- Yield - Line Yield, Scrap, Misprocess, SPC Control
- Cost - Wafer Cost, Cost per Layer, Resist Cost
- Tool Performance - Tool Availability, Tool Utilization, Top Constraints
1,300+ FACILITIES
Upcoming Fab Projects

100+ TABLES
Construction Spending

250 UPDATES
Equipment Spending

10+ CHARTS
Installed Capacity

Request a DEMO today
Congratulations Jessica Gomez!

FOA Device Maker Member

LLOYD WHETZEL
President and CEO
X-FAB Texas

“For X-Fab, FOA is a vital SEMI Strategic Association Partner. FOA surveys give us a level of benchmarking that we can’t get internally. They give us the opportunity to compare how we are doing against a variety of other fabs and justify what we want to do to improve efficiency, which is invaluable to our company – more valuable than what we pay in dues for the FOA membership!”
“We get a lot of value from FOA, and especially the surveys. Every year we find a golden nugget that guides us into an area where we want to deep dive into such as cycle time, cost and productivity. The results help us assess how we compare to fabs like our own in the device maker community. We use it internally to talk about where we want to focus our money and time.”

DALE MILLER
Executive Sr. Director
Fab 9 Global Foundries
OUR TEAM

SEMI FOA Staff

Tom Salmon
Executive Director, FOA & VP, CTP
SEMI

Shilpa Talwalkar
Program Manager,
SEMI FOA

Christie Baker
Program Coordinator,
SEMI FOA

FOA Governing Council Members

Kathy Clevenger
Microchip

Surya Iyer
Polar Semiconductor

Dale Miller
GLOBALFOUNDRIES

John Spicer
ON Semiconductor

Lloyd Whetzel
XFAB Texas

Ariel Meyuhas
MAX IEG
Connect@SEMI is an online collaboration platform that gives members access to event proceedings, webinar recordings, market reports, and the ability to directly connect with each other.

https://connect.semi.org/
Excellence in Manufacturing