SEMICON Europa & electronica Press Conference

Ajit Manocha, SEMI President & CEO

13 November 2018
>$2T Electronics Design & Manufacturing
Eco-SYSTEM

Without this.

None of these.
Gateway to the Electronics Supply Chain

$170B  Semiconductor Manufacturing
$477B  Semiconductor Revenue
$2T    Electronic Systems Revenue
# Semiconductor Industry Outlook

## ICs

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$412B</td>
<td>$477B</td>
<td>$502B</td>
</tr>
</tbody>
</table>

Source: WSTS 8/18

## Semiconductor Equipment

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$57B</td>
<td>$62B</td>
<td>$64B</td>
</tr>
</tbody>
</table>

Source: SEMI 8/18

## Semiconductor Materials

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$47B</td>
<td>$52B</td>
<td>$53B</td>
</tr>
</tbody>
</table>

Source: SEMI 8/18

## Geographical Distribution

<table>
<thead>
<tr>
<th>Region</th>
<th>Americas</th>
<th>Europe</th>
<th>Japan</th>
<th>Taiwan</th>
<th>South Korea</th>
<th>ROW</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>20%</td>
<td>9%</td>
<td>17%</td>
<td>13%</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>13%</td>
<td>7%</td>
<td>15%</td>
<td>22%</td>
<td>16%</td>
<td>11%</td>
</tr>
<tr>
<td>2019</td>
<td>9%</td>
<td>6%</td>
<td>16%</td>
<td>16%</td>
<td>12%</td>
<td>16%</td>
</tr>
</tbody>
</table>

Source: SEMI 8/18
SEMI is the Gateway to the $2T Electronics Supply Chain

10+ Technology Communities

2000+ Member Companies

170+ Programs

7 SEMICONS

5000+ Volunteers

1.3MIL People Served

2300+ Program Hours

970+ Standards

SEMI is your global multiplier

1SEMI

Connect ♦ Collaborate ♦ Innovate

Grow ♦ Prosper

SEMICON®
13-16 NOV 2018
MUNICH
GERMANY
SEMI Ecosystem and 5 Vertical Application Platforms
Electronics components now 30% of a car’s manufacturing cost, likely >50% in 2030

80% of automobile innovations depend on semiconductors

- Semiconductors (ICs)
- Advanced Packaging
- Systems on Chip (SOCs)
- Silicon, GaN, SiC
- Opto-electronics
- HB-LEDs

- Electronics System Design
- IP
- Multi-die IC
- Design automation
Eras of Demand Driving Moore’s Law to $1 Trillion in 2030

Forecasting 2018 revenue records: IC $424B (+15% YoY)

Sources: IC Insights and VLSI Research

Source: IC Insights
SEMI Growing Workforce Development Response

SEMI High Tech U launched in 2000 to ignite interest in STEM and build the STEM pipeline. Delivered 236 programs globally to date.

“SEMI has made workforce development a top strategic priority. Globally, the industry is confronted with more than 10,000 job vacancies.”

Additional talent priority issues identified as:

- Higher education partnerships
- Training and mentorship
- Diversity and inclusion
- Industry image

Collaboration in war for talent is essential for continued industry growth and will help support a better future for our industry.

Dan Durn, CFO Applied Materials
SEMI Industry Strategy Symposium, 18 January 2018
SEMI Comprehensive Workforce Development – Filling the Pipeline

**Engage early and inspire STEM**

**4th grade Robotics**
- Engage early and inspire STEM

**High School SEMI HTU**
- Paths to STEM that tie to industry.

**Community College Connections**
- Certifications and connections to advanced manufacturing

**University Connections**
- University partnerships to provide industry access to emerging talent in STEM fields

**Certifications**
- Certified training programs that ensure competency

**Retraining**

**Experiential team learning environment:**
- Engage and inspire early
- Continue to engage and motivate K12-college
- Provide pathways to industry careers
SEMI Focus Activities – Delivering On Member Issues

> 270,000 verified visitors
+ 6% YoY visitors
> 4,500 companies
> 60 countries

Connecting the Industry

Expositions
• Advocacy
• Standards
• Thought Leadership
• Talent Development
• Market Intelligence
• Communities
• Programs
Executive Summary

• Semi conductors, the heartbeat of the $2T Electronics Design & Manufacturing Ecosystem
  – Semi conductors are the driving force behind Automotive and AI Evolution
  – Design Ecosystem critically strategic part of the Semi conductor industry

• Europe is strategically positioned in the Global Electronics Supply Chain
  – Automotive & Electronics – The Crown Jewels of Europe “Innovation to Applications”
  – Medical is the next Automotive

• Workforce is an Industry Global Challenge, “Talent, Diversity & Inclusion”
  – SEMI Comprehensive Workforce Development –
    • Filling the Pipeline supporting your business growth
SEMI speeds the time to better business results for its members across the global electronics manufacturing supply chain.