KEYNOTES AND EXECUTIVE PANELS

- **Aart de Geus**, PhD, Chairman and Co-Chief Executive Officer, Synopsys—De Geus shared his vision of how the industry can collaborate and co-optimize in new ways to drive the AI roadmap, from silicon to software.

- **Lisa Su**, PhD, President and CEO, AMD—Su explored how next-generation architectures and emerging techniques like heterogeneous design and advanced packaging will deliver the high-performance computing and graphics products that power the AI Era.

- **Victor Peng**, President and CEO, Xilinx—Peng looked at architectural innovations across hardware and software that will deliver order-of-magnitude improvements in performance and performance-per-watt for AI era applications.

- **Gary Dickerson**, President and CEO, Applied Materials—Dickerson surveyed new ways to accelerate industry innovation—from materials to systems—as AI and big data emerge as an economic investment opportunity of our lifetime.

- **Cliff Young**, PhD, Engineer, Google—Young shared the system demands of cloud and neural network workloads and discussed Google’s needs for the future of semiconductor design and manufacturing technology in the AI Era.

- **Dean Kamen**, Founder and President, DEKA Research & Development, Founder, FIRST and FIRST Global—Kamen addressed the need for early education in STEM, motivating the next generation to understand, use and enjoy science and technology.

- **PR (Chidi) Chidambaram**, PhD, VP of Process Technology and Foundry Engineering, Qualcomm—Chidambaram explored the technology needs of IoT devices and 5G connectivity and shared his vision for enabling low-power AI Era computing.

VISITOR HIGHLIGHTS

- 80% of visitors influence buying decisions
- 45% of visitors represent engineering or technology roles
- 20% of visitors are international

PROGRAM HIGHLIGHTS

- **ES Design West** provided a look into every corner of the electronic system design ecosystem including design automation and semiconductor intellectual property and provided opportunities to connect with design industry leaders.

- **AI Design Forum** outlined a new playbook for innovation—from materials to systems—that can propel the next wave of microelectronics industry growth as IoT, big data and AI transform the world’s major industries and spawn tens of billions smart sensors that will be incorporated into industry and consumer products.

- **Smart Transportation Pavilion** engaged visitors with technical experts detailing the critical role of silicon, MEMS and sensors, and microprocessors in meeting the increasingly complex demands of manufacturers and suppliers in the fast-growing autonomous vehicle marketplace.

- **Spotlight on SEMI Women** gave attendees insights into how to promote diversity and inclusion in the global microelectronics industry from female leaders who are beacons of knowledge, leaders of organizations and initiatives, hidden heroes and industry innovators.
VISITOR PROFILE

SEMICON West attracts a highly influential audience from every segment and sector of the global microelectronics industries, including semiconductors, solar/PV, LEDs, MEMS, Display, Fabless, Design, System OEMs, printed/flexible electronics, and other adjacent markets.

INFLUENTIAL BUYERS

PURCHASING AUTHORITY

- 34% Final Decision Maker
- 42% Recommend/Evaluate/Consult
- 4% Specify
- 19% No Role/Other

JOB LEVELS

- 21% Executive Management
- 26% Senior Management
- 27% Other Management
- 22% Non-management
- 4% Other (incoming students)

PRIMARY JOB FUNCTIONS

<table>
<thead>
<tr>
<th>Job Function</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D</td>
<td>13%</td>
</tr>
<tr>
<td>Design</td>
<td>5%</td>
</tr>
<tr>
<td>Equipment Engineering</td>
<td>5%</td>
</tr>
<tr>
<td>Fabrication/Process Engineering</td>
<td>3%</td>
</tr>
<tr>
<td>Chemicals/Materials</td>
<td>2%</td>
</tr>
<tr>
<td>Test</td>
<td>2%</td>
</tr>
<tr>
<td>Facilities/Engineering Support</td>
<td>1%</td>
</tr>
<tr>
<td>Industrial Engineering</td>
<td>1%</td>
</tr>
<tr>
<td>Packaging/Assembly</td>
<td>1%</td>
</tr>
<tr>
<td>QA/Failure Analysis/Reliability</td>
<td>1%</td>
</tr>
<tr>
<td>Software Engineering</td>
<td>1%</td>
</tr>
<tr>
<td>Marketing, Sales, Business Development</td>
<td>27%</td>
</tr>
<tr>
<td>Executive Management/Board Member</td>
<td>12%</td>
</tr>
<tr>
<td>Product Management</td>
<td>6%</td>
</tr>
<tr>
<td>Manufacturing/Operations Management/Production</td>
<td>5%</td>
</tr>
<tr>
<td>Purchasing/Procurement/Office Management</td>
<td>4%</td>
</tr>
<tr>
<td>Financial/Industry Analyst/Investor Relations</td>
<td>3%</td>
</tr>
<tr>
<td>Logistics/Supply Chain Management</td>
<td>2%</td>
</tr>
<tr>
<td>Environment, Health, and Safety</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Government/Public Policy</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Human Resources</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Training/Education</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Integration/IT Support</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Other</td>
<td>6%</td>
</tr>
</tbody>
</table>

80% of visitors influence buying decisions

45% of visitors represent engineering or technology roles

80% of visitors influence buying decisions

45% of visitors represent engineering or technology roles
**AREAS OF INTEREST**

SEMICON West visitors represent a broad range of industries, technologies, products and services from across the extended supply chain, from design through manufacturing.

**INDUSTRIES SERVED**

SEMICON West attracts a diverse range of visitors from across the microelectronics industry.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semiconductors</td>
<td>83%</td>
</tr>
<tr>
<td>Sensors</td>
<td>23%</td>
</tr>
<tr>
<td>MEMS</td>
<td>16%</td>
</tr>
<tr>
<td>Automotive/Transportation</td>
<td>14%</td>
</tr>
<tr>
<td>Photonics</td>
<td>14%</td>
</tr>
<tr>
<td>Aerospace</td>
<td>13%</td>
</tr>
<tr>
<td>LED/Solid State Lighting</td>
<td>13%</td>
</tr>
<tr>
<td>Medical</td>
<td>12%</td>
</tr>
<tr>
<td>Photovoltaic/Solar</td>
<td>12%</td>
</tr>
<tr>
<td>Consumer Electronics</td>
<td>11%</td>
</tr>
<tr>
<td>Display/FPD</td>
<td>11%</td>
</tr>
<tr>
<td>Imaging</td>
<td>10%</td>
</tr>
<tr>
<td>Flexible Hybrid Electronics/Printed Electronics</td>
<td>9%</td>
</tr>
<tr>
<td>Professional Services/Consulting</td>
<td>9%</td>
</tr>
<tr>
<td>EMS/Contract Manufacturing/Precision Engineering</td>
<td>8%</td>
</tr>
<tr>
<td>PCB Assembly</td>
<td>8%</td>
</tr>
<tr>
<td>PCB Manufacturing</td>
<td>8%</td>
</tr>
<tr>
<td>Software/Applications</td>
<td>8%</td>
</tr>
<tr>
<td>Academia/University/R&amp;D</td>
<td>7%</td>
</tr>
<tr>
<td>Government</td>
<td>5%</td>
</tr>
<tr>
<td>Association/Non-profit</td>
<td>2%</td>
</tr>
<tr>
<td>Media/Publication</td>
<td>1%</td>
</tr>
<tr>
<td>Other</td>
<td>4%</td>
</tr>
</tbody>
</table>

**AREAS OF INTEREST**

<table>
<thead>
<tr>
<th>MANUFACTURING INTERESTS</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front-end Manufacturing (IDM, foundry)</td>
<td>40%</td>
</tr>
<tr>
<td>Material Engineering/Materials Science</td>
<td>34%</td>
</tr>
<tr>
<td>Packaging/Assembly</td>
<td>29%</td>
</tr>
<tr>
<td>System Integration/Product-level Manufacturing</td>
<td>28%</td>
</tr>
<tr>
<td>Design/EDA/IP</td>
<td>26%</td>
</tr>
<tr>
<td>System-level Manufacturing</td>
<td>26%</td>
</tr>
<tr>
<td>Test</td>
<td>26%</td>
</tr>
<tr>
<td>Board-level Manufacturing</td>
<td>12%</td>
</tr>
<tr>
<td>Roll-to-Roll/Printing</td>
<td>9%</td>
</tr>
<tr>
<td>Other Manufacturing</td>
<td>5%</td>
</tr>
<tr>
<td>Imaging</td>
<td>10%</td>
</tr>
<tr>
<td>Fabless</td>
<td>9%</td>
</tr>
<tr>
<td>Factory Control/Process Software</td>
<td>9%</td>
</tr>
<tr>
<td>Other Design/Manufacturing Services</td>
<td>8%</td>
</tr>
</tbody>
</table>

**MANUFACTURING EQUIPMENT**

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factory Automation/Robotics</td>
<td>25%</td>
</tr>
<tr>
<td>Large-area /Thin Film</td>
<td>22%</td>
</tr>
<tr>
<td>Test</td>
<td>22%</td>
</tr>
<tr>
<td>Front-end Processing</td>
<td>19%</td>
</tr>
<tr>
<td>Assembly/Packaging</td>
<td>15%</td>
</tr>
<tr>
<td>Inspection and Measurement/Metrology</td>
<td>15%</td>
</tr>
<tr>
<td>Secondary Equipment and Services</td>
<td>15%</td>
</tr>
<tr>
<td>Components/Sub-systems/Instrumentation</td>
<td>13%</td>
</tr>
<tr>
<td>Parts</td>
<td>9%</td>
</tr>
<tr>
<td>Printing/Coating/Roll-to-Roll</td>
<td>6%</td>
</tr>
<tr>
<td>Abatement/Environmental Systems</td>
<td>5%</td>
</tr>
<tr>
<td>Other Manufacturing Equipment</td>
<td>9%</td>
</tr>
</tbody>
</table>

**APPLICATION INTERESTS**

<table>
<thead>
<tr>
<th>Application</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart Manufacturing</td>
<td>50%</td>
</tr>
<tr>
<td>Internet of Things (IoT)</td>
<td>41%</td>
</tr>
<tr>
<td>Artificial Intelligence Systems (AI)</td>
<td>39%</td>
</tr>
<tr>
<td>Automotive Electronics/Smart Transportation</td>
<td>27%</td>
</tr>
<tr>
<td>Consumer Electronics</td>
<td>26%</td>
</tr>
<tr>
<td>Medical Electronics/MedTech</td>
<td>21%</td>
</tr>
<tr>
<td>Mobile Technologies/Wireless/5G</td>
<td>21%</td>
</tr>
<tr>
<td>Wearables</td>
<td>21%</td>
</tr>
<tr>
<td>Virtual Reality/Augmented Reality (VR/AR)</td>
<td>19%</td>
</tr>
<tr>
<td>Green Manufacturing/EHS</td>
<td>15%</td>
</tr>
<tr>
<td>OLED</td>
<td>15%</td>
</tr>
<tr>
<td>Cloud Computing/High-performance Computing</td>
<td>14%</td>
</tr>
<tr>
<td>Imaging</td>
<td>13%</td>
</tr>
<tr>
<td>Other Applications</td>
<td>11%</td>
</tr>
<tr>
<td>Packaging/Assembly</td>
<td>21%</td>
</tr>
<tr>
<td>Wafers/Substrates</td>
<td>17%</td>
</tr>
<tr>
<td>Process materials: Gases/Liquids/Solids/Chemicals</td>
<td>14%</td>
</tr>
<tr>
<td>Cleaning</td>
<td>10%</td>
</tr>
<tr>
<td>Inks/Pastes/Printing Materials</td>
<td>10%</td>
</tr>
<tr>
<td>Consumables</td>
<td>8%</td>
</tr>
<tr>
<td>Other Materials</td>
<td>16%</td>
</tr>
</tbody>
</table>

**MATERIALS**

<table>
<thead>
<tr>
<th>Material</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaging/Assembly</td>
<td>21%</td>
</tr>
<tr>
<td>Wafers/Substrates</td>
<td>17%</td>
</tr>
<tr>
<td>Process materials: Gases/Liquids/Solids/Chemicals</td>
<td>14%</td>
</tr>
<tr>
<td>Cleaning</td>
<td>10%</td>
</tr>
<tr>
<td>Consumables</td>
<td>8%</td>
</tr>
<tr>
<td>Other Materials</td>
<td>16%</td>
</tr>
</tbody>
</table>

**DESIGN/MANUFACTURING SERVICES**

<table>
<thead>
<tr>
<th>Service</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D/Technology Transfer</td>
<td>31%</td>
</tr>
<tr>
<td>Foundries</td>
<td>30%</td>
</tr>
<tr>
<td>Manufacturing Services and Consulting</td>
<td>28%</td>
</tr>
<tr>
<td>Electronic Manufacturing Services (EMS)/System Integration</td>
<td>23%</td>
</tr>
<tr>
<td>Engineering Services</td>
<td>17%</td>
</tr>
<tr>
<td>Design/EDA</td>
<td>14%</td>
</tr>
<tr>
<td>Packaging and Test Services (OSAT)</td>
<td>12%</td>
</tr>
<tr>
<td>Fabless</td>
<td>9%</td>
</tr>
<tr>
<td>Factory Control/Process Software</td>
<td>9%</td>
</tr>
<tr>
<td>Other Design/Manufacturing Services</td>
<td>8%</td>
</tr>
</tbody>
</table>

**OTHER**

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support Products/Cleanroom</td>
<td>12%</td>
</tr>
<tr>
<td>General Business Services/Consulting</td>
<td>10%</td>
</tr>
<tr>
<td>Standards</td>
<td>9%</td>
</tr>
<tr>
<td>Representative Sales and Service</td>
<td>7%</td>
</tr>
<tr>
<td>Other</td>
<td>1%</td>
</tr>
</tbody>
</table>
# Key Visiting Companies and Organizations

SEMICON West attracts visitors from around the world and from every major microelectronics company, including buying teams from the world’s top capital spending IDMs, foundries, fabless, OSATs, and OEMs. *(Partial listings below)*

## IDMS/Foundries
- Cypress
- Fujitsu
- GLOBALFOUNDRIES
- IBM
- IDT
- Infineon
- Intel
- Lumileds
- Maxim
- Micralyne, Inc.
- Micron
- NXP Semiconductor
- ON Semiconductor
- Panasonic
- Qorvo, Inc.
- Renesas
- Samsung
- Silex Microsystems
- SK Hynix
- STMicroelectronics
- Teledyne DALSA Semiconductor
- Texas Instruments
- Toshiba
- Tower Semiconductors
- TSI
- TSMC

## Fabless/System OEMs
- ALTA Devices, Inc.
- Amazon
- AMD
- Analog Devices
- Apple
- ARM, Inc.
- Broadcom
- Cisco
- Cree
- Dell EMC
- Finisar Corporation
- FLIR Systems
- FormFactor, Inc.
- GE Global Research
- General Dynamics
- Google
- Hewlett-Packard
- Hitachi
- Huawei
- Infineon Corporation
- Jabil
- Juniper Networks, Inc.
- Kateeva, Inc.
- Keysight Technologies, Inc.
- Lockheed Martin
- Malena Sensors
- Marvell
- Merck Ltd.
- Microchip Technology
- Microsoft
- NeoPhotonics Corp.
- Northrop Grumman
- nVidia
- Omron
- Pacific Biosciences
- Qualcomm
- Raytheon
- Roche
- Rockwell Collins, Inc.
- Seagate Technology
- Siemens
- Skyworks Solutions, Inc.
- TDK Invensense
- Thermo Fisher Scientific
- Western Digital
- Xilinx

## OSATs
- Amkor Technology
- ASE Group
- JCET
- Promex Industries
- UTAC Group

## Research/Academia
- Arizona State University
- Cal Poly, San Luis Obispo
- Carnegie Mellon University
- Columbia University
- George Institute of Technology
- Harvard University
- imec
- Intermolecular
- Kongju National University
- Lewis University
- Lawrence Berkeley National Lab
- Massachusetts Institute of Technology
- NASA
- National Institute of Standards (NIST)
- Northwestern University
- San Jose State University
- Sandia National Lab
- Santa Clara University
- Stanford University
- SUNY Polytechnic Institute
- University of Arizona
- University of CA, Berkeley
- University of CA, Davis
- University of CA, Los Angeles
- University of CA, Merced
- University of Central Florida
- University of Michigan
- University of Washington

*Continued*
KEY VISITING COMPANIES AND ORGANIZATIONS

SEMICON West attracts visitors from around the world and from every major microelectronics company, including buying teams from the world’s top capital spending IDMs, foundries, fabless, OSATs, and OEMs. (Partial listings below)

EQUIPMENT/MATERIALS/SERVICES

- 3M
- Advantest Corporation
- Air Liquide
- Air Products and Chemicals
- Aixtron, Inc.
- AMEC, Inc.
- Applied Materials, Inc.
- Asahi Glass Co., Ltd.
- ASM International N.V.
- ASML
- ATREG, Inc.
- Aixcelis Technologies, Inc.
- BASF Corporation
- Brewer Science, Inc.
- Brooks Automation
- Bruker Corp.
- Cabot Microelectronics Corp.
- Cadence Design Systems, Inc.
- Canon
- Carl Zeiss
- COMET GROUP
- Corning, Inc.
- Cymer LLC
- Dai Nippon Printing Co., Ltd.
- Dow Chemical Company
- Dow Electronic Materials
- DuPont
- EAG, Inc.
- Ebara Corporation
- Edwards Vacuum
- Entegris, Inc.
- EV Group
- Ferrotec Corporation
- Fujifilm Electronic Materials Co., Ltd.
- Fujikin Incorporated
- Genmark Automation, Inc.
- Greene Tweed & Co.
- Hakuto Co., Ltd.
- Hamamatsu Corporation
- Heraeus
- Hermes Microvision, Inc.
- Hitachi
- Honeywell
- Intevac, Inc.
- Invensas Corporation
- JSR Corporation
- JX Nippon Mining & Metals
- Kanematsu PWS, Ltd.
- Kawasaki Robotics, Inc.
- Kinetics Systems, Inc.
- KLA+
- Kyocera
- Lam Research Corporation
- M+W Group
- Marubeni Corporation
- Materion Corporation
- Matheson Tri-Gas
- Mattson Technology, Inc.
- Mentor Graphics
- Mitsubishi Materials
- Mitsui & Co., Ltd.
- MKS Instruments, Inc.
- Multibeam Corporation
- Murata Machinery, Ltd.
- Nanometrics, Inc.
- Nanosys
- Nikon
- Nordson Corporation
- Parker Hannifin Corporation
- PDF Solutions, Inc.
- Perkin Elmer Medical Imaging
- Pivotal Systems Corporation
- Praxair, Inc.
- RAVE LLC
- Revasum
- Rudolph Technologies, Inc.
- SACHEM, Inc.
- SCHOTT AG
- SCREEN Semiconductor Solutions Co. Ltd.
- Shin-Etsu Handotai Co., Ltd.
- Soitec
- SPTS Technologies
- Sumitomo
- Synopsys, Inc.
- TE Connectivity
- TEL
- Teradyne, Inc.
- Toppan Photomask, Inc.
- Ultratech, Inc.
- Veeco Instruments
- Versum Materials, Inc.
- Wonik Holdings Co., Ltd.
- Xcerra Corporation
MEDIA PARTNERS AND ATTENDEES

More than 50 international trade and business publications and more than 100 journalists and industry analysts partnered with SEMI to bring extensive global coverage of news and information about and from SEMICON West and our participating companies. (Partial listings below)

2019 MEDIA PARTNERS

- 3D InCites
- Adhesives & Sealants Industries
- Advanced Packaging
- Angel Business Communications
- AspenCore
- Austrian Trade Commission
- AVEM
- A20Nano
- Bitnavi
- Bloomberg
- Bodo’s Power
- C&EN (American Chemical Society)
- Cadence
- Ceramic Industry
- Chip Design
- Chip Scale Review
- Circuitnet
- Compound Semiconductor
- Displays
- Dow Jones & Co.
- EDA Cafe
- eda2asic Consulting
- ElectroIQ
- Evaluation Engineering
- Extension Media
- Gartner
- Germany Trade & Invest
- Global LEDs/OLEDs
- Global SMT & Packaging International
- IDG
- IEEE Spectrum
- IHS
- JJI PRESS
- Korea Times
- La Plume
- LED Manufacturing
- McIlravenian Bruer
- McGraw-Hill/Amica Research
- Media & Entertainment Tech
- MEMS Direct
- MEPTEC
- Mergermarket
- MIT Technology Review
- NASA Tech Briefs
- Nikkei BP
- NP Communications
- Photonics Spectra
- Physics Today
- Power Electronics World
- Semiconductor Engineering
- Semiconductor Packaging News
- SemiWiki
- Shinysusa Publishing
- Silicon Run Productions
- Silicon Semiconductor
- Society of Vacuum Coaters
- Solid State Technology
- Spetling Media Group
- Techfocus Media
- TekReports
- The Korea Times
- U.S. Tech
- UBM
- UltraPureWater.com
- US Tech
- Vietnam Television
- Wafer News
- WTWH Media

INVESTORS/ANALYSTS

- Allianz Global Investors
- Arclinsight Partners
- AXA Rosenberg
- Benchmark
- Beutel Goodman
- Bohcay
- Citigroup
- Constitution Research and Management
- Coughlin Associates
- Cowen and Company
- D-Side Advisors
- Deutsche Bank
- Deutsche Securities
- Evercore ISI
- Exane BNP Paribas
- Exoduspoint
- FIL Investments (Japan) Limited
- Firsthand Capital
- Freeman Technology and Market Advisors
- FT
- G2 Investment Partners
- Gartner, Inc.
- Germany Trade and Invest
- Harris Associates
- HolospaceX
- iConnect007
- IDC
- IHS Markit Technology
- Industechreports
- ING
- Instinet
- Isaiah Research
- Jefferies & Co.
- JPMorgan
- Light Street
- Lone Pine Capital
- Lynx Equity Strategies
- Mitsubishi UFJ Morgan Stanley Securities
- MoreGain Capital
- MWV
- Needham & Company
- Northstar Capital Funds
- Pedestal Research
- Point72 Asset Mgmt.
- RBC Capital Markets
- Rule One Partners
- Squared Technology
- Seligman/Columbia Mgmt.
- Semiconductor Advisors
- Stifel Financial
- Susquehanna Int’l Group
- TECHCET
- Techinsights
- Technology Partners Inc.
- Tenzing Global
- VLSI Research
- WebFeet Research Inc.
- Wells Fargo