Q2 2023

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MESSAGE FROM THE DIRECTOR

Smart Manufacturing Newsletter

Greetings Smart Manufacturing Community!

Hold on to your seats (with the same level of precision and quality you bring to your work) because the excitement is building up! In just under 15 days, the industry's

finest minds and visionaries will gather once again at SEMICON West 2023, one of the largest gatherings of the entire microelectronics and design supply chain, to embark on a journey towards \$1T revenue, Net Zero, and Talent! With substantial global investments in semiconductor manufacturing, the anticipation is mounting. Industry 4.0 technologies are set to revolutionize efficiency, accelerate future factories, and bridge the skilled workforce gap. That's why the SEMI Smart

Manufacturing initiative with support from Smart Data-AI and SCM has curated an extraordinary lineup of speakers and content, all geared towards "Accelerating **Future Factories.**" Whether you're a seasoned industry professional seeking fresh perspectives or a budding enthusiast eager to explore new possibilities, the Smart Manufacturing Pavilion awaits you. Here, you'll gain the knowledge, connections, and tools

necessary to turn your digital transformation vision into tangible value.

excellence. We extend our heartfelt appreciation to them for their invaluable contributions. Here's some notable sessions at the Smart Manufacturing pavilion. Date Session Chair Session

The esteemed Planning Committee members have meticulously curated a dynamic

program, uniting individuals who are pushing the boundaries of manufacturing

Day 1 - July 11 Dinesh Saigal (AMAT) Connectivity & Security - Wireless Infrastructure

	Bobby Mitra (Deloitte)	Generative AI in semiconductors
	Doug Suerich (PEER Group)	Automation & Equipment Toward Fully Autonomous Factories
Day 2 - July 12	Pushkar Apte (SEMI)	Data Ecosystem
	Ranjan Chatterjee (Cimmetrix)	AI/ML Enabled Manufacturing Operations
		Global Cybersecurity Forum: Securing the Future for Semiconductor Manufacturing
		America's Path Forward in Semiconductors, A SEMICON West Session on Government and the Semiconductor Industry
		Smart Manufacturing Pavilion Reception
Day 3 - July 13	Sindhu Anand (Deloitte)	Extended Chip Capacity
	Andrew Seward (TEL) & David Gross (Siemens)	IRAM – Industry4 Readiness Assessment Workshop: A tool to Guide and Measure the progress of your Smart Manufacturing Journey
	Krish Dharma (SEMI)	Foundations to Build Agile Supply Chains

And for all you podcast aficionados, make sure to tune in to our recent episode to discover why SEMICON West is the catalyst driving industry growth. So, register today, spread the word, and become a part of the community shaping the future of smart manufacturing. See you amidst the stunning sights of San Francisco!

Nishita Rao Sr. Product Marketing Manager, SEMI

CHAPTER NEWS Global

Smart Manufacturing GEC met twice in 2Q2023, and the meetings focused on detailed views of elements of the roadmap vision requested by members. The specific areas covered included:

Global Executive Committee (GEC) Update

1. Data Architecture - GEC Vice-Chair James Lin (UMC) led the discussion by

sharing a vision for a holistic Data Architecture connecting data sources, virtualization, and analytics. By way of background, companies are seeking

clarity on data and data architectures, with issues including public vs. private cloud, single or tiered data lake, definitions of data, etc. becoming more prominent. 2. Smart Control Room (SCR) - GEC Americas Co-Chair John Behnke (Inficon) and Chris Bode (Inficon) led the discussion with the background that SCR

screens (as depicted in the movies) but rather a digital twin platform environment supporting horizontal integration of all data sources, AI/ML prioritized task identification (autonomous), and assignment & execution

cannot be something 10 years from now and cannot be something with static

tracking. 3. Industry 4.0 for Sustainability – GEC SEA Co-Chair Koen de Backer (Micron) led the discussion on Accelerating Sustainability with Smart Manufacturing. There is growing interest in developing tools, processes, and methods to improve facility sustainability footprint, including leadership support for these efforts. The GEC is proposing to provide direction in these areas through the formation of global working groups, and member participation is encouraged towards creating a

clear mission/charter and defined output from each. To participate in these activities,

please contact Mark da Silva at smartmfg@semi.org

CHIPS for America released a summary of responses to the Request for Information on Manufacturing USA Semiconductor Institute(s) on Jun 2, 2023 https://doi.org/10.6028/NIST.AMS.600-12 NIST is currently in the process of selecting topics and begin the proposal process by Fall 2023. The response summary is as follows:

Did not indicate a clear consensus on topics

broadened to make an impact (due to cost)

Did agree that new semiconductor-related institute(s) should be carefully coordinated with other CHIPS

Research and other entities (NAPMP, NSTC, and other

Co-investment strategy for the new institute(s) should

MfgUSA Inst.) Existing Manufacturing USA institutes are a good model Institute structure and governance for the new institute(s). The scale of the new institute(s) would need to be

encourage participation from the fully diverse ecosystem. Shared access to expensive equipment, fabrication engagement facilities, and novel materials. Support experiential learning opportunities for all Education and workforce development educational levels. Metrics and success Track measures to demonstrate the impact of the new Manufacturing USA semiconductor institute(s). Responders also suggested leveraging the best practices of the existing Manufacturing USA institutes and their federal agency sponsors to develop and implement metrics. **INDUSTRY 4.0 READINESS ASSESSMENT MODEL** Industry 4.0 Readiness (IRAM) WORKSHOP **Assessment** Model Join us at SEMICON West for the exclusive IRAM -Industry4 Readiness Assessment (Hybrid) Workshop on July 13th hosted by the SEMI Smart Manufacturing Guidelines Working Group. This workshop offers a unique opportunity to explore the practical implementation of the IRAM model in various areas of electronics manufacturing. Discover its application in key areas like a 200mm front-end fab, assembly area, final test areas, and more. For workshop participation, contact Mark da Silva at smartmfg@semi.org. Don't miss out! Limited seating available - Rm 154, Upper Mezzanine, Moscone South



SEMICON'WEST

Experience the energy of SEMICON West with its sold-out

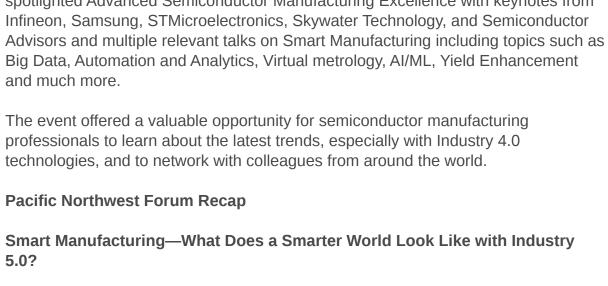
exhibit hall and exciting new programming focusing on the

You'll be amazed by the outstanding lineup of speakers curated by the dedicated SEMICON Planning Committee for the highly anticipated Smart Manufacturing Pavilion Program. Gain invaluable advice and inspiration from superstar CEOs, manufacturing executives, and other

Smart Initiatives, CHIPS Act, supply chain issues,

sustainability, and workforce development.

The 2023 SEMI ASMC Conference was held in Saratoga Springs, New York, from May 1-4 and was a huge success. As the first entirely in-person ASMC since the pandemic, this year's conference wrapped up with record high attendance in the past 5 years as industry professionals returned to Saratoga Springs for curated presentations, engaging conversations, and invaluable connections. ASMC 2023 spotlighted Advanced Semiconductor Manufacturing Excellence with keynotes from



SEA Partner Event - From Data to Insights: Maximizing Semiconductor Manufacturing and Supply Chain Efficiency with the Cloud This was an invitation-only partner event hosted by Deloitte, AWS, and SEMI in Singapore on May 12th, 2023, and was well attended by C-Suite and senior executives from the region.

Southeast Asia Regional Advisory Board, provided an overview of SEMI, its regional

Followed by focused presentations on Smart Manufacturing and the use of Cloud in semiconductor operations by Bobby Mitra & Jan Nicholas (Deloitte), Gautham Unni

competition, rising costs, and changing customer demands. Smart manufacturing, which involves the use of digital technologies to improve efficiency, productivity, and

Chan Pin Chong (K&S), Executive VP & GM of K&S and a member of SEMI

The semiconductor industry is facing a few challenges, including increased

sustainability in manufacturing operations, is seen as a key enabler for the semiconductor industry to overcome these challenges and remain competitive.

activities, and the role of cloud infrastructure in Smart Manufacturing adoption.

components of Industry 4.0 with a focus on sustainability, environmental, social and

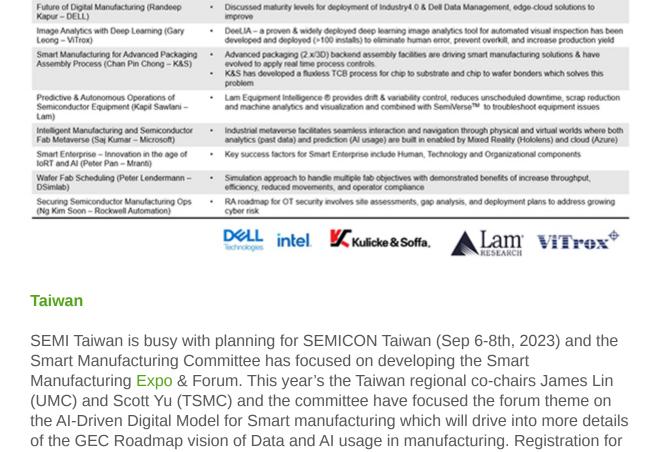
human well-being, and human-robot interaction.

(AWS) & Michael Passow (Global Foundries).

Cloud plays a key role in maximizing the benefits of smart manufacturing for the semiconductor industry by providing a scalable and secure platform for storing and processing data, which is essential for smart manufacturing (i.e., predictive maintenance, quality control, and supply chain optimization), traceability and improved collaboration. Implementation challenges such as solution integration, organizational complexity, legacy processes, and talent were highlighted with proposed paths forwards.

Lastly, Global Foundries presented a collaborative use case of AI/ML solutions on the OneGF AWS based cloud developed over the past 2 years. The accelerated deployment of AI/ML and solutions, scalability across multiple global sites, and presented opportunities displayed how cloud could become a key enabler for the

'From data to insights: Maximising semiconductor manufacturing and supply chain efficiency with the Cloud' executive luncheon



In addition, 2023 Touch Taiwan & Smart Manufacturing was held in April 2023.

SEMI China Smart Manufacturing Committee Meeting was held on May 11th at the Moganshan New Century Hotel (with Sponsors ThermoFisher Scientific and FA

FEATURED ARTICLES

Smarter Ways to Manufacture Chips

Technology News

China

Software).

Smart Manufacturing Makes Gains in Chip Industry Applying AI in Fab Technology Co-Optimization Resilient Semiconductor Supply Chains: Why Every Supplier Counts

Building the Workforce to Power the Semiconductor Revolution

SEMI Works with Taiwan Semiconductor Ecosystem to Address 4 Key Industry **Growth Challenges** Key SEMI Europe Successes in First Half of 2023: EU Chips Act, Talent, PFAS and

🥭 semi

SEMICON' CHINA

SEMI News

Opportunities

Co-located with **FPDCHINA** Join the Smart Manufacturing Forum, where esteemed speakers Jun. 29-Jul. 1, 2023 from FA Software, Lam Research, Siemens, Huawei, Getech, and SNIEC, Shanghai, China Wuxi XinXiang will gather to discuss the future upgrade of factories with Industry 4.0 technologies exploring the harmonious integration of "Humancentric," "Sustainability," and "Resilience."

USA JULY 11-13, 2023 SAN FRANCISCO, CA

SEMICON West + FLEX | July 11–13, 2023 | California, **Building a Path Forward**

Advanced Rates

6-8, 2023 | Taipei, Taiwan

through smart manufacturing in 12" Fabs.

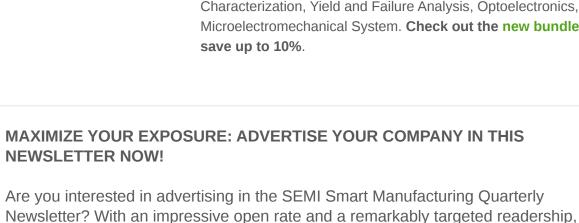


standards compliance.

Foundation is recognized as an important partner in the **CHIPS Workforce Development Guide, published by the** National Institute of Standards and Technology (NIST) of the United States Department of Commerce (DoC) in April 2023. We understand the intricacies of the application process and the specific requirements needed to secure funding. Visit our website to learn more! SEMI UNIVERSITY – BRIDGE THE SEMICONDUCTOR **TALENT GAP**

Foundation provides tailored guidance and support for your CHIPS

Act applications and workforce development programs. The



contact Eric Rude at erude@semi.org.

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Join the Interest List

Strategies for driving co-investment and

Americas

CHIPS for America

Institute Scope

Smart Manufacturing Pavilion at SEMICON WEST SMART MANUFACTURING 2023!

industry experts.

Register Now!



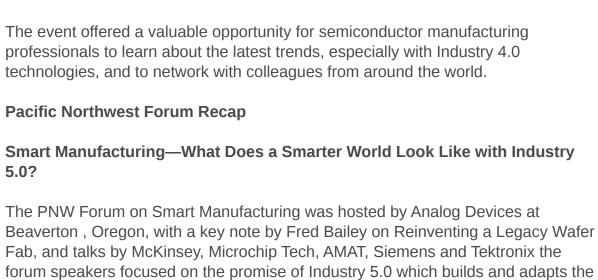


Photo credit: Deloitte

SEMICON SEA Recap

the forum is open – Register here!

Deloitte.

future of smart manufacturing in the semiconductor industry.

SEMICON SEA 2023 (Penang) was a huge success and smashed the records from 2022 in more ways than one. Apart from the overwhelming support from all attendees, this year we saw over 570 booths representing more than 17 countries, and received numerous positive comments from delegates, students and media members. Post Show Report is available here. The Smart Manufacturing Forum session was chaired by Mark da Silva (SEMI) with 10 speakers and over a 100 attendees during the day-long event. Key takeaways include: Generative AI In Semiconductor Operations (Koen De Backer – Micron)

Gen AI will raise productivity and efficiency in semiconductor operations, but companies need to understand and implement in a practical way as new business processes, technology safeguards and talent upskilling are needed implement in a practical way as new business processes, technology safeguards and talent upskilling are needed Value Creation with Gen Al (Bo Huang - Primary use cases of GenAl in semiconductors - Generative Design, Predictive Maintenance, Quality Control, Natural Language Generation and Image/Video Synthesis

The committee meeting was opened by Chai Dr. Lu Lingzhi (FA Software), followed by presented talks Automated Factory Solutions Digital Twin to Enhance the Efficiency of Fabs (Wang Ben, Intel Dalian) • Exploring the Benefits of InterfaceA device control (Ciu Lin – Neucloud) Participants included CXMT, HLMC, Schneider, FA Software, Intel, Siemens, Primarius, GOODO, TOWA, Hanwha, IKAS, Flexciton, Toshiba Mitsubishi-Electric, Glorysoft, GoNa, Getech, SEMI-TECH, Linkwise, Neucloud and more. Europe In the EU region, Smart manufacturing momentum is strong and increasing across the semiconductor industry. The SEMI Smart Manufacturing initiative seen as highactivity, deep, and trusting driver of value to the industry and the initiative will have a kick-off meeting in June to discuss the proposal of a new working group focused on Industry4 Software Enablement to address challenges with IOT Data Acquisition and Analysis, Legacy Software, Cloud, and standards gaps.

Boosting Electronics Supply Chain Agility with Digital Twins **CHIPS ACT & WFD News** SEMI Foundation Launches Workforce Development Menu to Support CHIPS Act **Funding Applications**

F Gases, EU Ambition, ISS Europe **UPCOMING EVENTS**

29-July1, 2023 | Shanghai, China

Smart Manufacturing Forum at SEMICON China | June

Topics will include breakthroughs in semiconductor manufacturing

With +300 speakers, +489 exhibit booths, +20 networking events,

Smart Manufacturing Expo at SEMICON Taiwan | Sep

The Smart Manufacturing Expo, building on its successful 2022 edition, is set to attract an expanded range of solution providers in high-tech manufacturing, system integration, software, hardware,

Semiconductor Cybersecurity Pavilion, highlighting advanced

defensive drills, cyber security maturity assessment, and industry

solutions for combating hacking and viruses, offensive and

food trucks, Taste of San Francisco upscale dining, private meeting rooms, and many more features, we're reimagining the show to bring you a new and improved experience. Act fast! Registration rates go up after June 30 - Save up to \$135 with

Watch the Video to Preview New Show Features

and demand-side players. The expo will feature the

using ML, process simulation, Siemens QMS for automotive quality requirements, and the accelerated capacity ramp-up

Podcast: SEMICON West 2023 Reimagined for a New Age of Chip Industry

CHIPS ACT & WORKFORCE DEVELOPMENT Tap into SEMI Expertise to Navigate Funding Requirements The CHIPS Act presents a significant opportunity for your company to drive workforce development initiatives. SEMI

SEMI University is an industry-led online learning platform offering a specialized curriculum for employees at all levels ranging from new operators to experienced technicians to non-technical staff. Users from 40 countries are already taking advantage of over 360 courses in multiple languages. Course categories: Introduction to Semiconductors to Advanced Technologies, AI & Data Techniques, Safety, Front-end and Back-end Processing, Test and Characterization, Yield and Failure Analysis, Optoelectronics, and

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