

# SINGAPORE SEMICONDUCTOR VOICE

SSIA  
Singapore Semiconductor Industry Association

Volume 26 • T05SS0291A



What does  
**SUSTAINABILITY**  
mean for the **Semiconductor industry?**

**Exclusive Edition #1: Collect Volumes 26–28  
to reveal a special image!** Find out more on p03



Business  
networking  
opportunities

Knowledge  
sharing platform  
with government  
agencies

Extensive  
market  
outreach and  
branding  
opportunities

Leadership  
and master  
class  
trainings

Priority in  
customised talent  
outreach  
programmes

Priority access  
to industry  
benchmark data  
and directories

# Benefits of SSIA Membership

To connect with us  
visit <https://ssia.org.sg>



For more information about membership  
visit <https://ssia.org.sg/join-us/>



## SSIA Welcomes New Members

cādence®

**CASTEC**  
SINGAPORE

**DYMAX®**  
a Bachmann Chemical & Engineering Company

**IMM**  
InMindCloud

 新茂私人有限公司  
MEGA VALVE & FITTING PTE LTD

Qualcomm

**RS**



## FOREWORD BY Executive Director

It is with great pleasure that I introduce the latest issue of the Voice Magazine, a publication by the Singapore Semiconductor Industry Association (SSIA). This magazine is a result of the wonderful journey that I, along with SSIA, embarked upon since 2018. Our journey with the Voice Magazine has connected various companies, industry leaders, educational institutions, and government agencies, and motivated our industry to achieve greater success. The Voice Magazine has also become a platform for our industry to showcase itself to the world. This May issue is the start of a 3 exclusive series till our anniversary issue in September where it is an extension of each cover through the issues. Each issue will also focus on the 3 key pillars that SSIA has stood for – Strengthening and Growing Local Ecosystem, Sustainability, and Talent Development.

As I reflect on the story of this magazine, it is also timely to reflect on how far the Singapore semiconductor industry has come in recent years. Singapore's semiconductor industry took root in 1968, at the humble premises of the Singapore Institute of Standards and Industrial Research (SISIR), an EDB-owned training facility, in River Valley. National Semiconductor, an American microelectronics company, was the first such company to set up operations in Singapore. Since then, the semiconductor industry in Singapore has grown exponentially. Today, it is a thriving and robust sector that contributes nearly a quarter of Singapore's total manufacturing output. This year marks 55 years of remarkable achievements by the country's semiconductor industry, and to celebrate this milestone, a grand dinner will be held on 19th September at Resorts World Sentosa.

The dinner will feature a review of Singapore's semiconductor industry, including its history and its progress over the years, especially over the past 5 years. Most importantly, this dinner will showcase Singapore's semiconductor industry to the world, with the presence of the industry's C-suites from all around the globe. The dinner will be an excellent opportunity for all involved to reflect on their past and look forward to the future of this important sector in Singapore. We are now inviting sponsors to support this event, and more information can be found in this publication or on the SSIA website.

I will also need to mention the upcoming flagship event of SSIA - the Semiconductor Business Connect, which will be held on 6 July. Business Connect has become our industry's primary platform for business matching. With strong backing from many of our MNCs, the event has been growing and attracting more companies every year. It is positioned to serve as a showcase of our industry's latest technologies, products and services. This year, we will emphasize the adoption of 3D printing in semiconductor manufacturing and showcase solution providers in the space of sustainability, on top of our common theme of automation and digitalization. Please reach out to us for more information regarding participation in this platform.

We have been seeing a slowdown in the semiconductor market for the past half year. That being said, several companies have begun to see the light at the end of this tunnel. In recent months, we have seen advancements in the AI space, such as ChatGPT and several other technological introductions. These will all spur demands for chips, and, hopefully, we will start to see an improvement in our market situation. Despite this uncertainty, we must not forget to continue investing in developing our talent pool and continuing to work towards building a more resilient supply chain for our business.

SSIA will continue to work with you and your business on this front. We continue to drive initiatives to develop our workforce, such as IC Design Summer Camp and school talks. We also continue to develop our leaders for the future of our industry with The Singapore Semiconductor Leadership Accelerator Programme (SSLA) and Leadership in Engineering. Information on these initiatives can be found on our website too.

### ANG WEE SENG

Executive Director  
Singapore Semiconductor Industry Association (SSIA)

### SECRETARIAT TEAM

#### EXECUTIVE DIRECTOR

Ang Wee Seng  
weeseng@ssia.org.sg

#### HEAD OF MARKETING AND COMMUNICATIONS & VOICE EDITOR-IN-CHIEF

Yvonne Perpetua Ng  
yvonne@ssia.org.sg

#### COMMUNICATIONS EXECUTIVE & VOICE CREATIVE DESIGNER

Chan Xing Yun  
xingyun@ssia.org.sg

#### DIRECTOR FOR BUSINESS DEVELOPMENT AND PARTNERSHIPS

Amy Ang  
amy@ssia.org.sg

#### BUSINESS DEVELOPMENT MANAGER

Jasmine Tai  
jasmine@ssia.org.sg

#### HUMAN CAPITAL DEVELOPMENT DIRECTOR

Velinda Wee  
velinda@ssia.org.sg

#### HUMAN CAPITAL DEVELOPMENT SENIOR SPECIALIST

Teresa Chong  
teresa@ssia.org.sg

#### STRATEGIC PROGRAMS DIRECTOR

Julie Koh  
juliekoh@ssia.org.sg

#### HEAD OF PROJECTS

Rebecca Foo  
rebecca@ssia.org.sg

#### EXECUTIVE ASSISTANT

Cindy Chong  
cindy@ssia.org.sg

#### HUMAN RESOURCE MANAGER

Patsy Tan  
patsy@ssia.org.sg

### SSIA BOARD

#### CHAIRMAN

Jennifer Teong

#### VICE-CHAIRMAN

Brian Tan

#### HONORARY SECRETARY

Tan Yew Kong

#### TREASURER

Chen Seok Ching

#### BOARD MEMBERS

Chiou Lid Jian  
CS Chua  
Tan Geok Hong  
Andrew Chong  
Bertrand Stoltz  
Terence Gan



# CONTENTS

## SSIA NEWS

- 03** Foreword by Executive Director
- 06** SSIA Events
- 08** Train, Upgrade & Reskill
- 09** Singapore Semiconductor Leadership Accelerator Programme

## DIVERSITY, EQUITY AND INCLUSION

- 12** Women's Forum

## GROWING THE TALENT PIPELINE

- 22** Empowering The Youth In Our Industry: Semiconductor Active Youth (SAY) Ambassador Programme First Get-Together
- 28** How AI is Transforming the Semiconductor Industry and Impacting University Students
- 29** Cultivating the Youth of Juying Sec with UTAC
- 33** Infineon Open House Day

## COMPANIES SHOWCASE

- 34** Is Your Semiconductor Test Data a Competitive Advantage?
- 36** Commitment to ESG & Sustainability
- 37** Enable a More Sustainable World

## STRENGTHENING THE ECOSYSTEM & INNOVATION

- 38** Manufacturing 2030 (M2030) Careers Initiative
- 40** Moore's Law Lives on in Memory

## SUSTAINABILITY

- 43** Paving The Way Into Sustainability By The Singapore Semiconductor Sustainability Committee
- 47** How Cleantech Services Collaborates with Companies to Ensure Sustainability in their Operations
- 48** Advancing Sustainability in the Semiconductor Industry
- 49** Partnering for Sustainability
- 50** A New Look for ASM

**DISCLAIMER:** The Singapore Semiconductor Voice is the official publication of SSIA. All rights are reserved and no part of this publication may be reproduced without the expressed written consent of SSIA and the publisher. While every effort has been made to ensure the information in this publication is accurate and up to date, the secretariat team will not be responsible for the errors made as a result of information received. Opinions expressed are that of writers and do not necessarily represent the views and opinions of SSIA or the publisher.



# Semiconductor Business Connect 2023

Thursday, 6 July



## Strengthening The Ecosystem With Emerging Technologies

Backed by MNCs, this platform aims to strengthen and grow the local Semiconductor and Electronics ecosystem by facilitating innovation through business collaboration. With a focus to grow businesses, Semiconductor Business Connect aims to Connect the Semiconductor network, to Innovate solutions and Collaborate for success. The business forum will include keynote presentations from supporting agencies that will help business leaders develop strategies of the future, discuss trending current affairs topics such as supply chain disruptions, sustainability in manufacturing. Most importantly, providing business matching opportunities, connecting manufacturers and solution providers to optimise operations through Industry 4.0, sustainable manufacturing and supply chain management.

Be part of the action:



# SSIA Mark Your Calendar EVENTS

Scan the QR code or email  
[secretariat@ssia.org.sg](mailto:secretariat@ssia.org.sg)  
to find out more.



**6 JULY 2023**

## Semiconductor Business Connect 2023

Electronics Industry Transformation Map 2025 is to create a faster and greater adoption of advanced technology and digital solutions into the semiconductor industry. Some companies have started to revolutionise with new and innovative solutions into their manufacture. How then do more companies stay ahead of the curve and be at the forefront of this transformational change while staying on the pulse of sustainability?

Be a part of SSIA's strong ecosystem as we delve into the sphere of collaborations and innovations.

**19–21 JULY 2023**

## IC Design Your Future Summer Camp

IC Design Your Future Summer Camp is proudly brought to you by the IC Design Committee. This 3-Day program presents university undergraduates with an opportunity to learn more about the Semiconductor and Electronics industry, IC Design career prospects, visit leading multi-national companies like AMD, Silicon Labs, and GlobalFoundries; and most importantly, interact with various Semiconductor companies' industry leaders and members to experience the vibrancy, focus and passion of this industry.

**23–25 JULY 2023**

## WorldSkills ASEAN 2023

For the first time, Singapore will be hosting the 13th WorldSkills ASEAN Competition in July 2023 at the Suntec Singapore Convention & Exhibition Centre. The competition will see close to 250 top youth talents from the 10 ASEAN member countries competing in 22 skills areas. Apart from the skills competition, WorldSkills ASEAN Singapore 2023 will also feature interactive activities to promote skills and a skilled career.

**18–21 JULY, 15–18 AUGUST 2023**

## Singapore Semiconductor Leadership Accelerator

A custom programme designed to inspire emerging technical and business leaders to continue creating revolutionary possibilities with semiconductors. It was conceived as part of the Singapore Semiconductor Vision (SSV) 2020, a task force comprising the private and public sectors to increase competitiveness in Singapore's Semiconductor manufacturing industry. Delivered as two modules, the programme is an immersive hands-on learning experience designed to accelerate personal and professional growth for leaders to succeed in the increasingly volatile, uncertain, complex, and ambiguous (VUCA) global environment.

For more details, please contact [velinda@ssia.org.sg](mailto:velinda@ssia.org.sg).



**29–31 AUGUST 2023**

## Leadership in Engineering

The SSIA Leadership in Engineering Programme aims to develop soft skills and sharpen leadership qualities for engineers in the Semiconductor and Electronics industry through talks, industry veteran sharings, and interactive workshops with case studies and discussions. This program targets exceptional engineers and engineering managers who have been in the industry for 3 years or more, identified as top talent by their organisations. Objectives include improving self reflection and awareness, interpersonal and communications skills at the workplace, and networking with peers among others.

For more details, please contact [velinda@ssia.org.sg](mailto:velinda@ssia.org.sg).

# SSIA Summit 2023 AND Semiconductor 55 Dinner

## FORGING RESILIENCE: NAVIGATING SUPPLY CHAIN DISRUPTIONS

*TUESDAY, 19 SEPTEMBER 2023 // RESORTS WORLD CONVENTION CENTRE*

2023 is a momentous year for the Singapore semiconductor industry, as it marks 55 years of remarkable achievements and how far the industry has evolved. Today, it is a thriving and robust sector that contributes nearly a quarter of Singapore's total manufacturing output. It is not just about the outstanding achievements we have made as an industry, but it is also a celebration of the people who have been instrumental in getting us to where we are today.

The SSIA Summit 2023 is one of the key events in our industry calendar. The event will anchor Singapore's position as one of the leaders in the semiconductor industry to the world. This year, we will be focusing on resilience that touches on supply chain in the semiconductors industry — an issue that is becoming increasingly important to our industry and society as a whole.

The Summit will culminate in the "Singapore Semiconductor 55 Dinner". This dinner is an important networking opportunity for the industry to connect with other leaders and friends from across the ecosystem. Our partners from the government agencies and various institutions will also be invited to join the dinner. This will be our industry's largest physical dinner gathering in Singapore compared to the 50th anniversary celebration we had in 2018.

For more details, please contact [amy@ssia.org.sg](mailto:amy@ssia.org.sg).

# TRAIN, UPGRADE & RESKILL

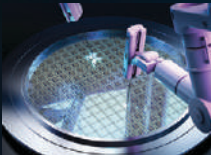
As the semiconductor and electronics sector strengthen our local ecosystem and relook at ways to attract and retain talents, training, up or re-skilling and upgrading remain critical in staying relevant and future-proofing ourselves. Check out programmes in the pipeline, brought to you by SSIA and our learning partners.



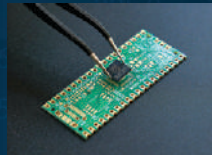
Introduction to Vacuum and Plasma Technology (1 day)



Microscopy and Thin Film Characterization for Failure Analysis (1 day)



Wafer Fabrication in Semiconductor Industry (3 days)



Digital Integrated Circuit (IC) Testing



Advanced Manufacturing Inspection Workshop (4 days)



Semiconductor Processes (2 days)



Check out [SSIA website](https://ssia.org.sg) or scan the QR code for full list of events, training and courses. Or contact Teresa at [teresa@ssia.org.sg](mailto:teresa@ssia.org.sg)



# Singapore Semiconductor Leadership Accelerator

## PROGRAMME

The Singapore Semiconductor Leadership Accelerator (SSLA) is designed to inspire emerging technical and business leaders to continue creating revolutionary possibilities with semiconductors. It was conceived as part of the Singapore Semiconductor Vision (SSV) 2020 taskforce – comprising members of private and public sectors – to increase competitiveness in Singapore's semiconductor manufacturing industry.

Delivered as two modules, the programme is an immersive hands-on learning experience designed to accelerate personal and professional growth for leaders to succeed in the increasingly volatile, uncertain, complex and ambiguous (VUCA) global environment.

### Run 9

#### Programme Dates:

18–21 July & 15–18 August 2023

More info:



# SINGAPORE SEMICONDUCTOR LEADERSHIP ACCELERATOR PROGRAMME

**T**he Singapore Semiconductor Leadership Accelerator (SSLA) is designed to inspire technical and business leaders to continue creating revolutionary possibilities with semiconductors. It was conceived as part of the Singapore Semiconductor Vision (SSV) 2020 taskforce — comprising members of private and public sectors — to increase competitiveness in Singapore's semiconductor manufacturing industry. SSLA is now one of our industry's largest leadership development platforms that has helped nurtured a pool of over 180 future leaders from more than 30 companies for the semiconductor industry over the last 7 years. The SSLA platform is essential for developing future leaders who will shape our industry, and this platform remains relevant to this day, more now than ever.

SSLA brings along the most relevant topics of today's business, such as Geo-Politics and Supply Chain Challenges, Trade Wars and Digital Disruptions, Work Trends and Talent Competitiveness, Ecosystem Edge, Human Centred Leadership, Leadership Mindset, Agility and Transition, Sustainability Management and more. This



is especially pertinent now as nations around the world have realised the importance of the semiconductor industry from both an economic and a national security standpoint.

Over the years, SSLA has cultivated leaders who have grown exponentially within their given fields, and we are proud of the accomplishments they have achieved so far. The programme focuses on mid to senior level management teams and individuals and is custom designed to inspire emerging technical and business leaders to continue creating revolutionary possibilities within the industry. Delivered in 2 modules, it is an immersive hands-on learning experience designed to accelerate personal and professional growth for leaders to succeed in the increasingly volatile, uncertain, complex, and ambiguous global environments, with a special emphasis on the semiconductor industry. Designed as a measure for truly effective intervention, the program has its roots in understanding the needs of the Asian

emerging leaders in the regional and global semiconductor industry.

SSLA is organised in partnership with the Human Capital Leadership Institute (HCLI), which was established in 2010 with the Ministry of Manpower, the Singapore Economic Development Board and the Singapore Management University as strategic partners. They are one of Singapore's best in developing global leaders, and SSIA have been in partnership with them since Run 1 of SSLA in 2017.

As we are now moving beyond the pandemic, and with the increasing need to develop future leaders in this industry, the two runs this year (Run 8 and 9) will be conducted on-site.

SSLA Run 8 completed on 3 March 2023 (Module 1: 7–10 February and Module 2: 28 February–3 March) with 23 participants from 11 of SSIA's member companies. This intake also sees a good gender diversity as for the first time, the







3



4



5

programme had attracted a total of 8 female participants.

The Theme for Run 8 is “Thriving with Resilience – Leading for the Sustainable Future. With the on-site setting for this run, all participants had a great time sharing and exchanging ideas with one another. They actively debated on issues covering geopolitics, trade wars, talent management, workplace behaviours and leadership styles. The participants also benefited from the net-

working sessions with invited industry leaders and SSIA alumni where they shared real life experiences and challenges, and were introduced to highly interactive experiential learnings, cases studies, management games, team building activities and “Mindfulness” sessions to help them cope with the daily stresses in life. The programme ended with a graduation ceremony where participants shared their learnings and experiences they had gained with their fellow industry and HR leaders.

Registration for Run 9 starts now!  
Module 1: Tue 18<sup>th</sup> Jul to 21<sup>st</sup> Jul 2023  
Module 2: Tue 15<sup>th</sup> Aug to 18<sup>th</sup> Aug 2023

For more testimonials:  
scan here



To find out more:  
scan here



1. SSIA cohort of Run 8
2. Interactive session facilitated by Dr Scott Macleod, HCL
3. Infineon's CS Chua having a discussion about Leading With The Future In Mind
4. Leadership panel of SSIA alumni, moderated by Bill Cornwell
5. SSIA Run 8 graduates enjoying a celebratory champagne

CONTRIBUTED BY

**VELINDA WEE**

Director,  
Human Capital Development  
SSIA



# Semiconductor



# Women's Forum 2023

THURSDAY, 9 MARCH



From left: Ms Karen Lim, Head of Human Resources, APAC, Skyworks; Mr Ang Wee Seng, Executive Director, SSIA; Mr Brian Tan, Vice Chairman, SSIA; Mdm Rahayu Mahzam, Senior Parliamentary Secretary, Ministry of Health & Ministry of Law; Ms Jennifer Teong, Chairman, SSIA; Ms Ritu Favre, Executive Vice President and General Manager of the Semiconductor Business, National Instruments; Ms Jenny Tan, Procurement Director and Lead for MWLN, Micron Technology; Mr Hosea Lai, Senior Director, Culture of Inclusion, APAC, Applied Materials



## “Transformation with the Power of Diversity and Inclusion” – A Definitive Step Towards A Mind-set Shift in Semiconductor Industry

**S**emiconductor Women's Forum Returns for a Third Run to Embrace Diversity, Equity, and Inclusion (DEI) and most importantly, to celebrate Women in the Semiconductor and Electronics Industry. In conjunction with International Women's Day 2023, all participating companies came together on 9 March and pledged to #EmbraceEquity collectively as an industry. It was a commitment to advocate DEI.

It was empowering to listen to the panel discussion moderated by Ms Jenny Tan, Procurement Director and Lead for MWLN, Micron Technology; together with our Guest-of-Honour, Mdm Rahayu Mahzam, Senior Parliamentary Secretary for Ministry of Health and Ministry of Law; Ms Ritu Favre, Executive Vice President and General Manager of the Semiconductor Business, NI; Mr Hosea Lai, Senior Director, Culture of Inclusion APAC, Applied Materials; and Ms Karen Lim, Head of Human Resources APAC, Skyworks; discussing on the event's theme. The exchange of perspectives and stories provided insights for some a-ha moments.

**“** Ritu Favre shared about her career journey and experience, “Getting a Seat at the Table and Keeping it”. She touched on learning to be kind to oneself, keeping tabs on self-care; leveraging on mentoring, being bold to seek out mentors, both formally and informally, and also finding your voice and finding it fast, for your ideas and thinking to get across.

Other industry leader - Ms Celeste Yeo, Senior Vice President, Site Head Plant Singapore, Infineon; Mr David Ferguson,



Guest of Honour Mdm Rahayu Mahzam delivering her opening speech





*Panel discussion: Transformation With The Power Of Diversity And Inclusion*



*Ms Ryme Dembri, Head of Leadership, Talent and Culture, ASM and Ms Delyn Lew, Field Service Engineer, ASM*

Site Director & Corporate Vice President of Production Operations, AMD and Ms Sandra Mahadwar, Chief Inclusion & Diversity Officer and Senior Vice President Talent Management, KLA - touched on Empowering personal growth through Mentoring, The Power of Inclusion, and #EmbraceEquity begins with Inclusion for All. The insights shared by the industry leaders shed light on what they themselves and their companies have done to encourage and advocate DEI.

David, being a strong ally of diversity and inclusion, called out “Look out for the ‘little’ guy” mantra, bringing in the new hires and interns on board as soon as possible, and being inclusive of them. He also urged to foster a workplace where all voices are heard, welcomed, and valued.

Not forgetting the young talents who courageously presented on stage, like Ms Lawanya S, Senior Lithography Process Engineer, GlobalFoundries; Ms Priscilla Chan, Field Service Engineer, Lam Research and Ms Delyn Lew, Field





Service Engineer, ASM; with their “Why not me? – Go for it!” attitude. They shed light on how their companies have put in concerted efforts towards equal representation; for example it was stated that Lam Research has put action into DEI where Priscilla was their first female Field Service Engineer in Lam Research SEA and within a year, they have made tremendous progress with 4 female field service engineers now. It just shows that it is never too late to start, and we applaud their efforts and achievements.

With the Semiconductor Women’s Forum platform, we hope that more talented women will join the industry, be empowered to grow, inspired to thrive in, and contribute to the growth of the industry. We continue to strive for an inclusive workplace and culture for all.

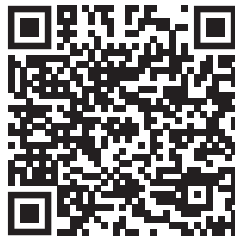
CONTRIBUTED BY

**JULIE KOH**

Strategic Programs Director  
SSIA



*Ms Priscilla Chan, Field Service Engineer, Lam Research*



*Scan for event videos*



*Scan for more info*



























ASM 



 ssmc



 Kulicke & Soffa®







Empowering The Youth In Our Industry:

**Semiconductor Active Youth (SAY)**

**Ambassador Programme First  
Get-Together**





**T**he SAY Ambassador Programme is a one-year programme that is meant to create a robust pipeline of young talent for the semiconductor industry, working in close partnership with both Institutes of Higher Learning and leading companies in the industry. SSIA is helping this programme as part of its efforts to bridge the gap between students leaving school and joining the semiconductor industry. Students have in the past expressed difficulty in the steep learning curve between school and work, and we aim to close that gap while also developing leaders who are passionate about the industry.

Jointly organised by SSIA and AMD, the First get-together for the SAY Ambassador Programme was held on 6 April 2023 at AMD Changi Business Park, where over 70 SAY Ambassadors and Mentors gathered to learn, interact and network.

Present were representatives and SAY Mentors from all 6 companies currently engaged in the programme: AMD, ams-OSRAM, GlobalFoundries, A\*STAR Institute of Microelectronics, Micron, and Tokyo Electron, who engaged in their first face-to-face meetings with their assigned SAY Ambassadors to discuss the companies' tailor-made programmes for them. More visits to each of the participating companies are also planned for the year.

The First Get-Together consisted of talks, a site tour, a panel discussion, and networking. The event was opened by Mr Ang Wee Seng, SSIA's Executive Director who shared about the vision of the industry and how the youths held the key for the future of the semiconductor industry.

Mr Eu Gene Goh, Senior Director, Design Engineering, AMD, spoke about

the Product Development Cycle in IC Design. His speech was followed by two younger speakers: Mr Lim Junrong, Senior Manager, Talent Acquisition, Micron Technology, who spoke about Talent Of The Future, as well as Ms S Lawanya, Senior Lithography Process Engineer, GlobalFoundries, who introduced GF and spoke about the Role of Pure-Play Foundry.

SAY Ambassadors also had the opportunity to go on an exclusive tour round the AMD Changi Business Park office to see what employees of AMD got to experience on the daily: from comfortable office spaces to fun and games in their canteen.

The panel discussion hosted one representative from each company present, and was moderated by 4 SAY Ambassadors who compiled engaging and thought provoking questions: Mr Eng Chong Yock,





School of Electrical and Electronic Engineering, NTU; Mr Teo Zhi Sen, College of Design and Engineering, Major in Engineering Science with Specialisation in Nanoscience and Technology, NUS; Mr Chandrappa Ashray, Electronic & Computer Engineering, NP; and Ms Chen Shuying, Engineering (Engineering product development, Electrical Engineering), SUTD. They discussed challenges and trends in the industry, technological innovations and developments, and the role of education and internships in preparing students to enter the industry.

To round up the session, the SAY Ambassadors and Mentors were given time to gather in their respective company groups to continue their discussions, where they were able to get familiar with one another and to better understand their aspirations.

The SAY Ambassador Programme First Get-Together is the first of many events and site visits to come. Would you like to come on board as the programme to develop your passion and career in this industry? Find out more below.



Scan here to find out more

**CONTRIBUTED BY**

**CHAN XING YUN**

Communications Executive  
SSIA





*SSIA Executive Director Mr Ang Wee Seng welcoming the students to the programme*



*AMD Design Engineering Senior Director Mr Eu Gene Goh talking about Product Development Cycle in IC Design*



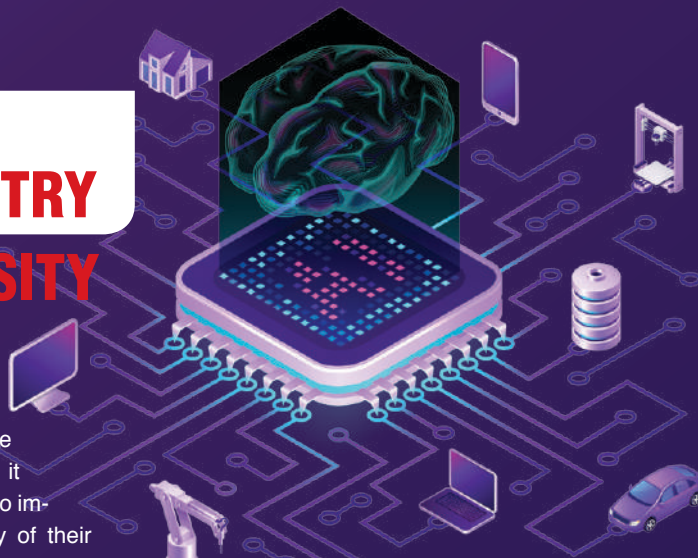








# HOW AI IS TRANSFORMING THE SEMICONDUCTOR INDUSTRY AND IMPACTING UNIVERSITY STUDENTS



**T**he world is changing rapidly, and the way we live and work is evolving with every passing day. One of the biggest drivers of this change is artificial intelligence (AI), which has disrupted several industries, including the semiconductor industry. AI is transforming the semiconductor industry by enhancing the manufacturing process, improving design, and driving innovation. As a result, university students are also impacted by this transformation, as the demand for AI skills continues to increase.

The semiconductor industry is critical to the functioning of modern society. It provides the building blocks for modern technology, from smartphones to self-driving cars. However, the industry is also facing challenges, including increasing competition, rising costs, and the need to constantly innovate. AI is helping the industry to address these challenges and stay ahead of the curve.

One of the ways that AI is transforming the semiconductor industry is by enhancing the manufacturing process. Semiconductor manufacturers have been using AI to optimize their manufacturing processes, reduce costs, and improve product quality. AI algorithms can analyse large amounts of data and identify patterns that humans may not be able to detect. This analysis helps in predicting when a machine is likely to fail, reducing downtime, and improving productivity. This not only helps manufactur-

ers to save time and money, but it also helps them to improve the quality of their products, making them more competitive in the market.

AI is also being used to improve semiconductor design. The design of semiconductors has become increasingly complex, and AI has become an essential tool in the design process. AI algorithms can simulate the behaviour of a semiconductor in different scenarios, reducing the need for physical prototypes. This reduces the time and cost involved in the design process while also improving the performance of the semiconductor. This means that semiconductor companies can bring new products to market faster and with fewer errors.

AI is driving innovation in the semiconductor industry. The use of AI in semiconductors has opened up new possibilities for innovation. For example, AI-powered chips are being used in self-driving cars, enabling them to make real-time decisions based on their surroundings. AI-powered chips are also being used in the healthcare industry, allowing for real-time monitoring of patients and the detection of health issues. These innovations have the potential to transform the way we live and work, making our lives easier and more efficient.

The impact of AI on the semiconductor industry is also being felt by university

students. As the demand for AI skills continues to grow, universities are introducing new courses and programs to cater to this demand. Students who graduate with AI skills are in high demand in the semiconductor industry, and their skills are highly sought after by employers. AI is also changing the nature of work in the semiconductor industry, with more emphasis being placed on data analysis and machine learning. This means that students who are proficient in these skills will be well placed to take advantage of the opportunities that arise.

In conclusion, AI has had a significant impact on the semiconductor industry, enhancing the manufacturing process, improving design, and driving innovation. The impact of AI is also being felt by university students, as the demand for AI skills continues to grow. As the semiconductor industry continues to evolve, AI will play an increasingly important role, and students who have AI skills will be well placed to take advantage of the opportunities that arise.

CONTRIBUTED BY

**ENG CHONG YOCK**

Electrical and Electronic Engineering  
Nanyang Technological University  
**SAY Ambassador**

# Cultivating the Youth of Juying Sec with UTAC

**O**n March 31, 2023, the Singapore Semiconductor Industry Association (SSIA) organized its first plant tour for a secondary school to visit a factory premises. The experiential journey was arranged for Secondary 3, 4 and Secondary 5 students from Juying Secondary school. Under the Juying Secondary School's Education and Career Guidance structure for students, they have two days dedicated for Academic and Career Excellence (ACE I and II). On ACE II, students get to visit an industry of their choice (selected from a range of options offered by the school) to hear from the industry experts on the nature of job that is performed in the industry, the challenges faced and the motivation that drives them to do the work that they do. The shared objective between the school and SSIA is for students to learn about the manufacturing process and see the application of semiconductors in daily life and hence have a greater motivation in working towards their career aspirations.

The tour was hosted by United Test and Assembly Center (UTAC) at their Serangoon Plant and was attended by 17 students, two teachers, and two staff from SSIA. The tour started with a warm welcome and introduction followed by a briefing on UTAC, where they explained the cycle of wafer production and the various UTAC products and their appli-

cations in daily life. The students were given a window plant tour, which enabled them to witness the actual manufacturing process of semiconductor chips. The tour concluded with a multiple-choice questionnaire about UTAC.

The feedback from Juying Secondary School was positive, with the students expressing their gratitude for the opportunity to visit UTAC and learn about the manufacturing process. The students found the experience to be enlightening and informative, and they were im-



pressed with the various technologies used in the semiconductor industry. They also enjoyed the quiz after the window plant tour, which helped them consolidate their learning.

UTAC also expressed their satisfaction with the events and their hope to extend their outreach to more students. They believe that it is important to introduce the younger generation to the manufacturing sector and to help them understand its significance in society. Furthermore, they aim to convince more young talent that the semiconductor industry is a promising and rewarding career path.

The plant tour organized by SSIA for Juying Secondary School was an excellent initiative to provide students with an experiential journey into the manufacturing process. It was a unique opportunity for the students to see the various stages of semiconductor production and understand the importance of the industry in daily life. The tour was also a chance for UTAC to showcase their manufacturing expertise and explain their contributions to the industry.

The plant tour was not only educational but also an eye-opening experience for the students. It exposed them to new technologies and provided them with a glimpse of the diverse career opportunities available in the semiconductor industry. Furthermore, it helped the students understand how their education and career choices could contribute to the development of this industry and society as a whole.

In conclusion, the first plant tour organized by SSIA for Juying Secondary school to a factory premises was a success. The tour was well-structured, informative, and engaging, providing the students with a unique learning opportunity. It also gave UTAC the opportunity to reach out to the younger generation and showcase their expertise in the manufacturing sector. Overall it was an excellent initiative that should be replicated to reach out to more students and inspire them to pursue careers in the semiconductor industry.

## 1 From left to right:

Teacher from Juying, Mdm Rosnah

Velinda, SSIA

Teresa, SSIA

Julie Yue – Senior HR Executive, UTAC

Teacher from Juying, Ms Amanda Foo

Low Fatt Chye, General Manager

Loh Yaozheng, HR Executive II

Matthew Chua, HR Manager

## CONTRIBUTED BY

**TERESA CHONG**

Human Capital Development  
Senior Specialist  
SSIA





# IC DESIGN YOUR FUTURE

## SUMMER CAMP



**19–21 JULY 2023**

AMD, Silicon Labs, and GlobalFoundries campus

### Summer Camp — IC Design Your Future

is proudly brought to you by the IC Design Committee. This 3-Day program provides the universities' undergraduates an opportunity to learn more about the Semiconductor and Electronics industry, IC Design career prospects, visit leading multi-national companies like AMD, Silicon Labs, and GlobalFoundries; and most importantly, interact with various Semiconductor companies' industry leaders and members to experience the vibrancy, focus and passion of this industry.

### Who it's for:

NTU / NUS / SIT / SUTD, Year 2 / Year 3 (AY2023/2024) undergraduates from Electrical, Electronics, Computing, or Design Engineering

### Objectives:

To get to know Semiconductor industry and IC Design sector, and grow the IC Design sector

### Programme Features:

- Sharing by Semiconductor and Electronics industry leaders and experts
- Panel Discussion and networking with industry leaders
- #AskMeAnything with AMD, Silicon Labs, and GlobalFoundries teams
- Line Tour and Fab Tour
- Innovation Day — Experiential learning with games



# JOB REDESIGN TO BOOST PRODUCTIVITY

**S**ince 2003, GBS (Singapore) Pte Ltd (“GBS”) leveraged its technical expertise to develop customised solution-based products and services for the semiconductor, defence and adjacent markets across 12 countries globally. Its customised solutions cover both semiconductor and vision areas. For semiconductors, these range from sealing solutions, heater pedestals, optics and coatings, repair and refurbishment to smart factory solutions. Its clients include top-tier wafer fabs globally. To ensure short time to market solutions accuracy and sustainability, GBS establishes close collaboration with their customers and partners from ideation to commission using well-established design and development processes; including overseeing and providing on-site technical support throughout the entire process.



*Vision System*



*GOBOT Factory 4.0*

To support the business growth plan, GBS recognises the need to scale and continually build the Customer Service Team’s capabilities. For better talent attraction and retention, it also wanted to review



**This learning journey with EON has been engaging and insightful as we build a sustainable framework for talent acquisition and development.”**

**Bobby Bock, General Manager  
GBS (Singapore) Pte Ltd**

its compensation and benefits system that is relevant, competitive and sustainable. GBS thus embarked on a Productivity Solutions Grant-Job Redesign (PSG-JR) project to redesign 2 job roles in the company, namely HR Executive and Customer Service Officer (CSO) working with “EON Consulting & Training Pte Ltd (“EON”).” Through EON, these two job roles are being transformed.

The current role of the HR Executive covers the recruitment, new hire onboarding, offboarding and maintaining policies. The redesigned HR Executive’s role will be enriched to undertake value-added tasks covering compensation and benefits system, maintaining its relevance and competitiveness. The current role of the CSO includes steps to ensure the fulfilment of all customer orders. The redesigned role will be enriched to include additional higher value-added tasks involving resource optimisation to achieve better inventory

turns, team productivity and freight cost, data analysis and supply chain solutioning to implement initiatives for higher efficiency in the customer service function.

To ensure customer service team productivity and scalability, the CSO will be tasked to standardise and cross-train other team members to undertake similar tasks. Relevant work aids were developed to support the enriched role implementation.



*Town Hall*

To get buy-in from employees, GBS also conducted a town hall, assisted by EON, to brief the key staff on the new compensation, salary structure and career prospects. The project had benefited GBS who is now able to tap on its higher value-added resources to support its business growth plan. The redesigned role allows the employee to pick up new skills, resulting in more opportunities for career progression and enhance talent attraction and retention.

**CONTRIBUTED BY**

**EON Consulting & Training Pte Ltd**

**EON**  
Building Professional Capabilities

Productivity Solutions Grant-Job Redesign is a government grant scheme administered by the Singapore National Employers Federation (SNEF), who is the Programme Manager for PSG-JR as appointed by WSG. EON Consulting & Training Pte Ltd is one of the pre-approved service providers by SNEF to carry out the job redesign for enterprises. Eligible enterprises will receive up to 70% funding for consultancy services, capped at \$30,000 per enterprise.

For more information, visit: <https://snef.org.sg/grants/psgj/>



*GBS Team Building*





# Leadership in Engineering

29–31 AUGUST 2023



The SSIA Leadership in Engineering Programme aims to develop soft skills and sharpen leadership qualities for engineers in the Semiconductor and Electronics industry through talks, industry veteran sharings, and interactive workshops with case studies and discussions. This program targets exceptional and high potential individuals who have been in the industry for 3 years or more, identified as top talents by their organisations. Objectives include improving self reflection and awareness, interpersonal and communications skills at the workplace, and networking with peers among others.

## Who it's for:

High potential individuals who have been in the industry for 3 years or more

## Objectives:

To prime the next generation of new leaders for the semiconductor and electronics industry, by helping them develop soft skills and sharpen leadership qualities.

## Programme Features:

- ▶ Self reflection and awareness
- ▶ Importance of interpersonal and communication skills at work
- ▶ Interactive workshops with semiconductor and electronics industry case studies and discussions
- ▶ Sharing by industry veterans and leaders
- ▶ Networking with fellow participants from different sectors within the industry... and many more!

For more information, email [velinda@ssia.org.sg](mailto:velinda@ssia.org.sg) or scan QR code

# INFINEON OPEN HOUSE DAY



**O**n 14th April 2023, Infineon Technologies organized its first ever Open House event for Emerging Talents. The event welcomed around 100 students from various local universities to learn about Infineon and the Semiconductor industry.

The Student Attraction team and Infineon's own emerging talent volunteers, with support from various departments, led the planning of this event, showcasing a true collaboration of One Infineon for the joint effort and collective mindset in sharing their brand and people culture to the young talents.

The event was opened by keynote speakers from Mr CS Chua (MD and

President, Infineon), Mr Ang Wee Seng (Executive Director, SSIA), Ms Pamela Leong (HR VP of APAC, Infineon), and panelist dialogue members comprising of our young talents. It was wonderful seeing students exploring the various event segments such as speed interviews and networking with each other.



More than 50 interns, scholars, and young graduates from Infineon's emerging talent programs enthusiastically supported and contributed to the event's success. Hiring managers were also at the scene to engage and socialize with the students to answer questions and impart their knowledge.

CONTRIBUTED BY

**Infineon Technologies  
Asia Pacific**





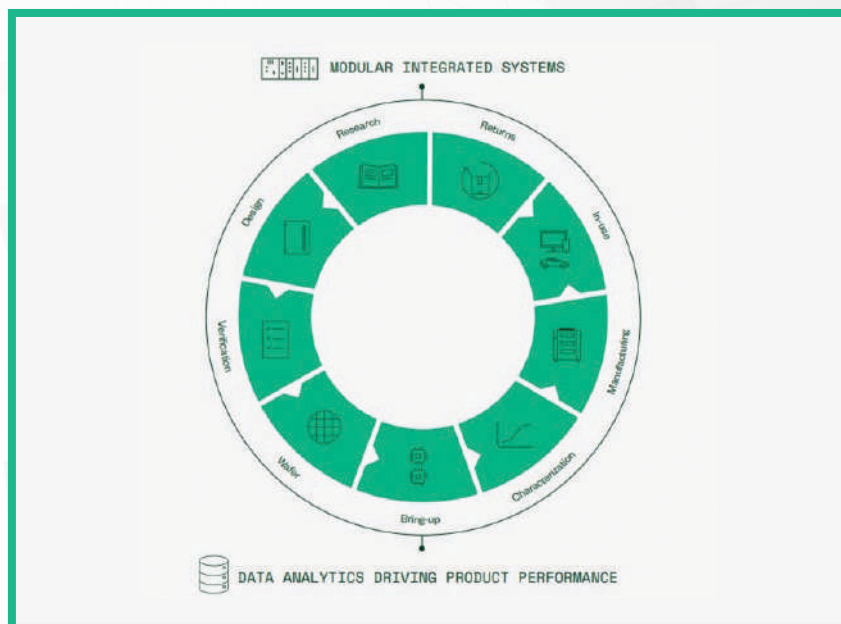
# Is Your Semiconductor Test Data

## A Competitive Advantage?

The pace of technology development continues to grow faster than ever before. As the competition for market share rises, organizations must meet increasingly tight market windows, with less resources, less budget, and less time. There is tremendous opportunity to maximize resources to solve these challenges and take control of the product development workflow. And the answer could be in your data.



**P**roduct data is collected every second during the design, validation, and test processes, yet we continue to see how underutilized it is. In many cases, this is due to disparate teams collecting data with different tools, in different formats and languages. Although we may be generating data that can help our products reach peak performance, it does not matter if we cannot access it, study it, protect it, and communicate our findings properly. We need the right data, stored in the right place, made accessible to the right people.



libraries significantly can decrease engineering time. We're living in an increasingly connected world and maximizing the value of data relies on tracking multiple sources at once. Being tech-forward means bringing these pieces together, to enable real-time response.

### TURN THE VOLUME OF TEST DATA TO YOUR ADVANTAGE

Our recent research revealed that change is needed to accommodate massive amounts of data, returning from each test, and it needs to happen soon. As product complexity escalates with each generation, data management and analytics tools will become an increasingly critical aspect of the design workflow and your competitive advantage. If you can exploit the ever-increasing amount of test data available from these complex devices, you can improve efficiency, quality, and consistency—and get to market more quickly.

Enabling a smart analytics platform, like NI DataStudio, connects data across sites, teams and phases of the design process. When knowledge is carried



across the whole process through common software and data sets, informed decisions can be made faster, ultimately accelerating your time to market.

### SMARTER, FASTER DECISIONS

Connecting the product lifecycle enables smarter, more insightful data analytics. Especially for global organizations with numerous locations, data sharing; replicated, standardized testing methodologies across geographies; and code





# COMMITMENT TO ESG & SUSTAINABILITY



**F**ully dedicated to fulfilling its corporate social responsibility, VIS has taken concrete actions to implement relevant policies that achieve best practices in corporate governance, promote environmental sustainability, establish a friendly workplace, and realize social engagement. The company is committed to creating shared prosperity, and our ESG efforts and contributions have been recognized by several important indicators and awards globally.

In 2022, we have achieved positive results in the three areas of environmental, social, and corporate governance (ESG). In the environmental area, VIS has become the first semiconductor company in Taiwan to commit to the RE100 target by 2040 and has further set goals to achieve the net-zero emission target by 2050. In Singapore, VIS has also been implementing the best control technology for greenhouse gas emission reduction. VIS aims to achieve an exceptional reduction effort in CO<sub>2</sub> emission, meeting National Environment Agency (NEA) of Singapore's benchmark by looking into greener alternatives



and using more renewable energy. In the social aspect, the company is committed to creating a healthy workplace with a holistic wellness program for our employees. In terms of corporate governance, VIS continues to implement management strategies in line with the spirit of strengthening our accountability, transparency, fairness, and responsibility while increasing diversity of our board of directors.

In 2022, VIS had been named to the Dow Jones Sustainability Indexes (DJSI) for two consecutive years and ranks third in the Semiconductor & Semiconductor Equipment Industry category. In addition to its continued inclusion in the DJSI World Index, the company was also selected for the first time as a constituent of the DJSI Emerging Markets Index. The DJSI is a global sustainability rating

authority that annually selects the top 10% of companies in sustainability performance (environmental, social, governance and economic) from thousands of companies around the world to compile its constituents, making it not only the most credible ESG assessment tool in the world, but also an important investment reference for global investors.

As a leading specialty IC foundry service provider, we are committed to providing our customers with the most competitive total solutions and high value-added services, we also focus on establishing positive relationships and interactions with our stakeholders while learning and growing together with them. In the future, VIS will continue to fulfill our social responsibility, achieve environmental and social sustainability, and move forward on the path of corporate sustainability.

## CONTRIBUTED BY

Vanguard International  
Semiconductor Singapore



# ENABLE A MORE SUSTAINABLE WORLD

## OUR SUSTAINABILITY STRATEGY

**S**ilicon Labs is creating a smarter and more connected world. We are steadfastly committed to advancing our environmental, social, and governance efforts and becoming a sustainable leader in the semiconductor industry. Our sustainability strategy is guided by our core values and focuses on areas where we believe we can make the biggest impact: creating innovative products with positive environmental and social impact, fostering and empowering a diverse, innovative culture; conducting our business in an environmentally and socially responsible way; and sharing value creation with our stakeholders and communities, now and in the future.

## OUR ESG APPROACH

We view sustainability through the lens of environmental, social, and governance (ESG) topics, focusing our sustainability goals in five strategic areas: employee wellbeing, products, and services innovation, eco-efficient operations, climate change mitigation, and responsible supply chain.

Our products enable sustainable IoT solutions across home, medical, industrial, and commercial environments, including air pollution and waste management monitoring, water integrity, residential irrigation monitoring, street lighting networks, advanced metering infrastructure,

and building energy management. We lead the industry in high-performance, low-power, and security with support for the broadest set of multi-protocol solutions. Our passion for energy-savings goes from chip-level design to system-level power consumption. We provide small, energy-efficient integrated circuits that can extend battery life by up to 25 percent, enabling fewer disposable batteries and reducing landfill waste.

We constantly innovate to improve our products and services for energy efficiency and productivity. Silicon Labs is focused on reducing die size to improve production yields, further reducing the energy consumption footprint, and optimizing manufacturing processes for source reductions. Our Series 2 products have been designed to meet the growing needs for low-power IoT devices, allowing devices to stay in the field for up to ten years on a single coin-cell battery.

## AFFILIATE MEMBER OF RESPONSIBLE BUSINESS ALLIANCE

Silicon Labs partners with world-class suppliers to manage products from development to customer delivery. As a fabless semiconductor company, we work with our supply chain to ensure global manufacturing processes are environmentally and socially responsible. We demand high standards of business integrity, environmental responsibility, and respect for human rights from all partners.

In 2022, we officially joined the **Responsible Business Alliance (RBA)**, the world's largest industry coalition dedicated to Corporate Social Responsibility (CSR) in global supply chains. Over 500 companies with manufacturing across 120 countries have joined the RBA working together to improve efficiency and social, ethical, and environmental responsibility in the global supply chain. For decades, we've worked closely with our suppliers to ensure they maintain ISO 14001:2015 certification and follow the Responsible Business Alliance® Code of Conduct.

For our customers, signing up to RBA is a statement that we are providing products that have been manufactured at environmentally and socially responsible suppliers and that we are committed to imposing safe working conditions for all workers throughout our supply chain.

## SUMMARY

Sustainable practices permeate every level of operations at Silicon Labs. We are constantly working to reduce our environmental impact through emissions and energy use, as well as develop products that are **enabling innovative IoT solutions** to improve energy efficiency and conservation efforts worldwide.

You can learn more about our efforts in our latest **Corporate Sustainability Report**.

CONTRIBUTED BY



SILICON LABS



# Manufacturing 2030 (M2030) Careers Initiative

**M**inistry of Trade & Industry (MTI) led a delegation comprising of Economic Development Board (EDB), Enterprise Singapore (ESG), Ministry of Finance (MOF) and Singapore Semiconductor Industry Association (SSIA) from 18 to 21 April 2023 to Germany and Denmark for a study mission.

The trip was for the participants to understand how manufacturing operations had changed, and how companies kept their workforce competitive in the market by having a clear structure of the career pathways and development for techni-

cians and engineers in their career. This is part of Singapore's Manufacturing 2030 plan to increase the attractiveness of our technical workforce.

Some of the key stakeholders the delegation met were the manufacturing companies, employer unions and government training institutes. One of the companies visited was SICK – a sensors intelligence company. The company believes in future proofing their workforce brought about by Industry4.0. Hence, they have invested significantly to build an academy to encourage hands-on innovative projects and in-person trainings

conducted by a dedicated team. Within the SICK organization, they have trained over 600 people both internally and externally. These people have developed skills and grown on the job.

Upskilling and reskilling our workforce is important to ensure competitiveness by helping more companies to automate and digitalise their operations. By fostering a closer partnership with SSIA, we help our network companies to increase their productivity to strengthen the local semiconductor ecosystem.

## OBJECTIVES OF THE TRIP:

### MANUFACTURING COMPANIES

- How manufacturing companies in these countries structure their operations and the corresponding workforce structure;
- Understand their hiring and workforce challenges, and how they have designed or re-invented manufacturing Careers and employment to meet these challenges.

### TRADE ASSOCIATIONS/UNIONS

- Learn about how TACs/unions have continued to evolve their role in the development of industry standards and regulations and curriculum, and what are the current challenges they face;
- Understand how they work with other social partners, including in negotiating collective bargaining agreements, to ensure the competitiveness of their manufacturing industries and manufacturing workforce.

### EDUCATION AND TRAINING INSTITUTIONS

- Understand their challenges and strategies in supporting the continued growth of their manufacturing industries;
- To learn about how the work closely with stakeholders such as businesses, trade unions, and educational institutions to develop and implement vocational education and training policies and practices;
- To learn how they ensure that VET programs are relevant and responsive to the needs of the labour market



**CONTRIBUTED BY**

**JASMINE TAI**

Business Development Manager  
SSIA

# + The Future Is Ours To Create

Whether it's a driverless car, VR experience or factory robotics, we help turn theory into possibility.

We help create the technological devices and ideas that transform our future and shape our current life.

[kla.com](http://kla.com)





# MOORE'S LAW LIVES ON IN MEMORY

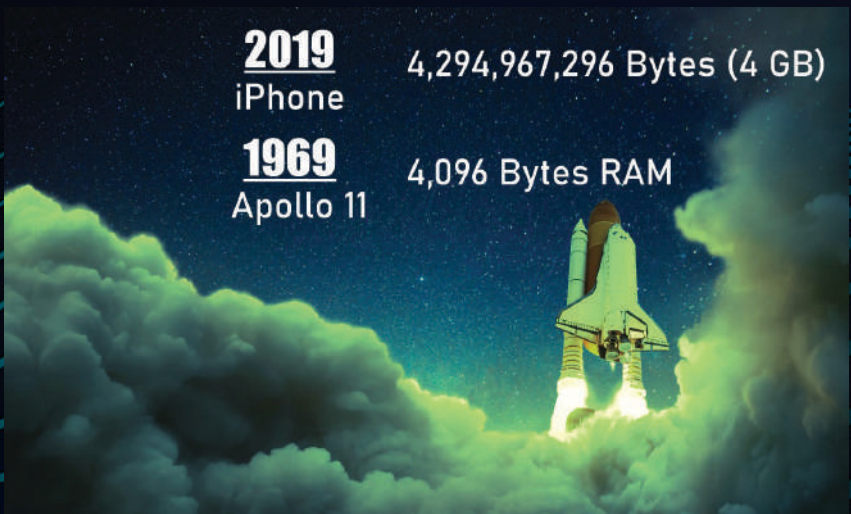
Recently, we said Farewell to Gordon Moore, who shaped the semiconductor industry like no other. His observation that the number of transistors doubles approximately every two years is known as Moore's Law and made him a legend in the industry. Because even today, almost 60 years later, it still holds true, and semiconductors have transformed our lives in a way that even Gordon Moore wouldn't have thought possible.

**M**emory technologies are a prime example, as they not only increased the storage capacity and performance of electronic devices but have also opened doors to new possibilities. DRAM memory was invented 55 years ago and has remained a vital technology enabler until today. If you think of it, in 1969 Apollo 11 flew to the moon with only 4,096 Byte of DRAM in its computer, the first embedded computer by the way. 50 years later iPhone 11 had 4GB RAM. That is more than a million times the RAM of the Apollo computer! Moore's Law has driven the reduction in the size of these memory cells, allowing for increased storage capacity in smaller form factors.

Another of Moore's great accomplishments is his support of research and development, fostering technology innovations and collaboration within the industry. This has helped to keep pace with continuous advancements even though many predicted the end of Moore's Law several decades ago. Be-

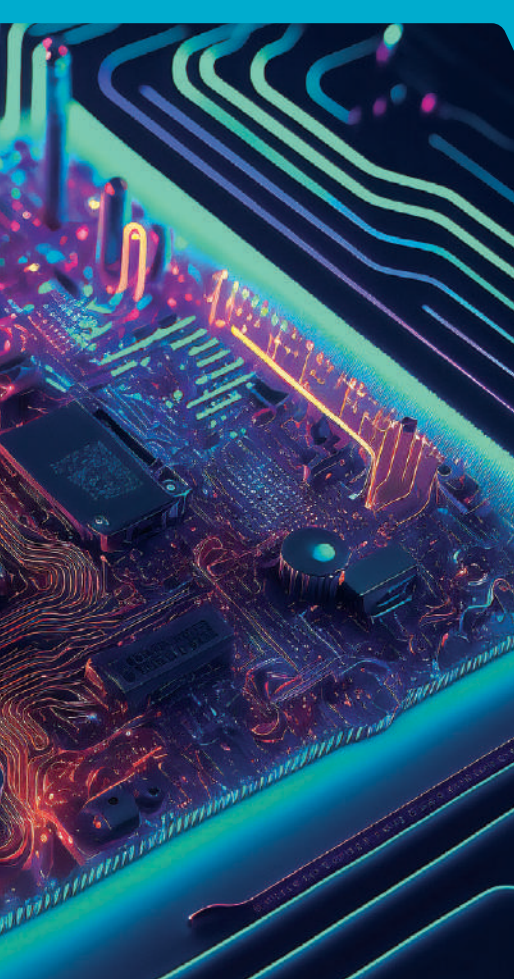
cause every time the physical limitations seemed impossible to overcome, new materials, and manufacturing technologies opened the door for higher density on a smaller footprint.

Miniaturization not only led to a more complex semiconductor manufacturing process that operates at the limit of physics and costs, but the applications



*Staggering example of how Moore's Law has driven scale in memory*





are also getting smaller, more varied and more demanding. Memory is a commodity that no modern application can do without. And while they might look the same on paper, there are nuances in the manufacturing process that can have a negative impact on thermal management and signal integrity depending on the environment they are used in.

Therefore, testing is more critical than ever before. But due to the size, complexity and costs of the equipment, only few companies can afford to implement test capabilities. And those who do, need to test high volumes to recoup the investment, which means that test times need to be short and clear only the main requirements of the most common applications. Niche requirements cannot be served.

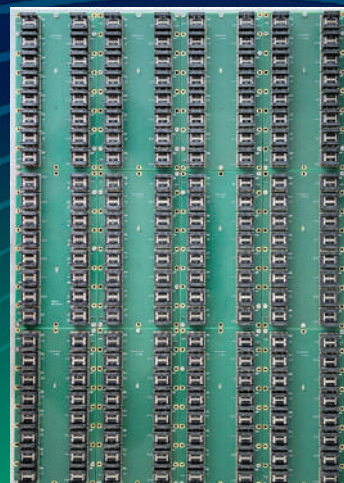
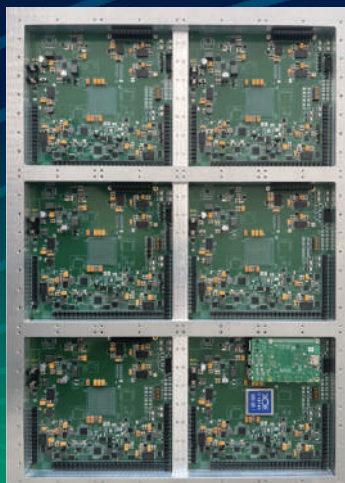
However, there are errors in DRAM technology that only arise in longer run

times, like for example, variable retention time induced fails or signal integrity issues. Testing for several hours or even days can eliminate the risk of costly recalls of failing memories once they are widely deployed.

One of the companies tackling these pain points is Neumonda Technology which was founded in 2021 and has since worked on the development of a new lightweight test board for industrial uses and environments. Its new test board simulates the application that a DRAM will be used in and is able to predict much more accurately than other technologies in the market how well a memory will do in that target system. This new approach significantly reduces the investment requirements for long-term testing and provides system and application-tailored testing for customer needs.

It's ideas like these that are needed to increase the manufacturing yield and be more cost-efficient in bringing products to market. With continuous research

and development, fostering of technology innovations and collaboration in the industry, companies will be able to adapt and thrive in this volatile market. And ultimately prove that Moore's Law lives on.



*A new application-specific DRAM tester from Neumonda Technology makes memory testing affordable and helps to increase yield.*



**CONTRIBUTED BY**

**MARCO MEZGER**

EVP & COO at memory specialist Neumonda

President MEMPHIS Electronic





Part of the Enterprise Sustainability Programme



TRAINING COURSE - SINGAPORE

# Fundamentals of decarbonisation for business

**16.5 hours over three days**

**Course dates running from May 2023**

**Up to 70% of ESP subsidies if participants meet the eligibility criteria**

Gain essential skills in Scope 1, 2 and 3 footprinting as well as science-based target setting to kickstart your decarbonisation journey towards Net Zero.

Organised by:



In partnership with:



# PAVING THE WAY INTO SUSTAINABILITY BY THE SINGAPORE SEMICONDUCTOR SUSTAINABILITY COMMITTEE

## ORGANISED BY SSIA

Sustainability has been a buzz word in recent years, and as it is a journey that does not have quick solutions, we have to start as early as possible.



**A**s discussed during SSIA Summit 2022: Advancing Technologies for a Sustainable Future, sustainability towards Net Zero is a focus and an important initiative for the semiconductor industry, and there is much that can be learnt and done about it.

The Singapore Semiconductor Sustainability Committee was formed in February 2023, led by a team of industry leaders with the objective to drive sustainability goals towards Net Zero.

The Sustainability Committee has 2 key workstreams:

**1 Designing a framework to create awareness about sustainability in the Semiconductor industry**

- Key focuses are Energy, Emission, Water, and Waste management

**2 Establishing and benchmarking sustainability indexes across the industry in Singapore**

- Help companies move towards a business model that embraces sustainability

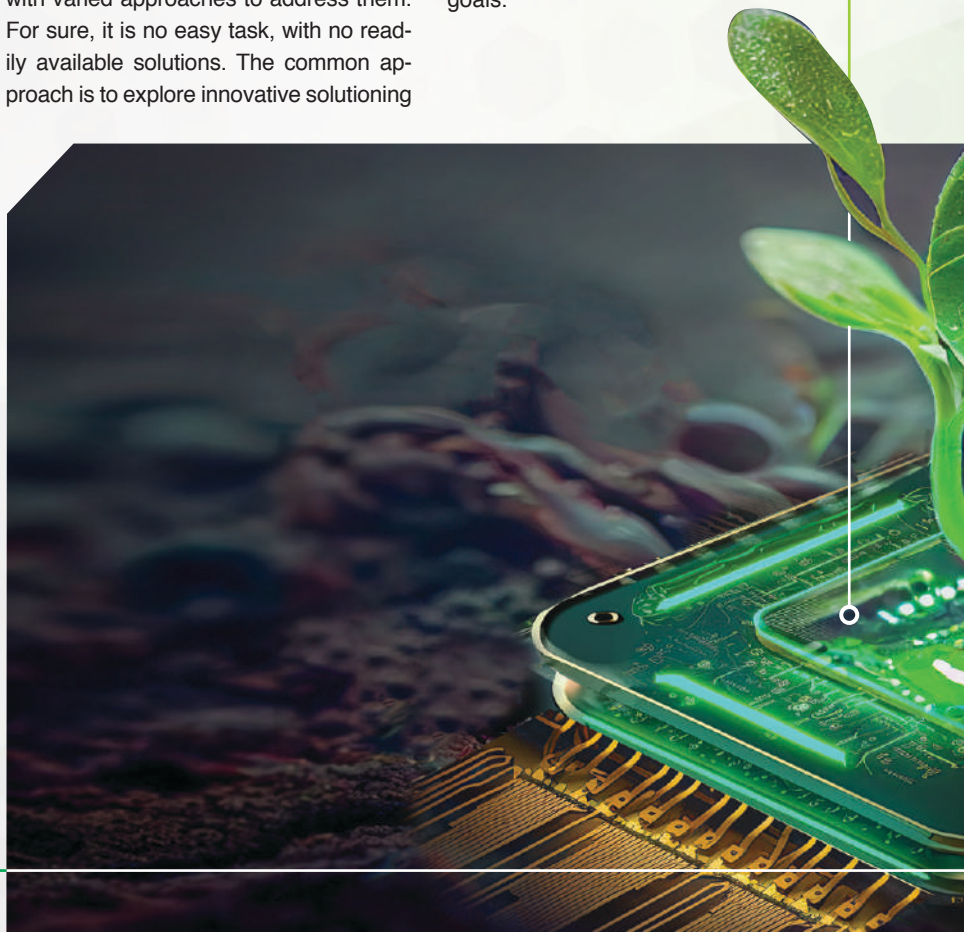
In doing so will help companies, including SMEs, in their transformation journey to adopt sustainable solutions into their business. Once companies are aligned on their business needs to transform, SSIA can assist these companies with a platform like Semiconductor Business Connect for potential solution providers and collaborators to connect, collaborate and innovate for sustainability solutions for the semiconductor industry.

**“**Ms Tan Geok Hong, Vice-President, Frontend Operations Strategic Program and Central PIE of Micron Technology, and SSIA Board Member shared, “Companies are recognizing the need to act on sustainability and commit aggressive long-term goals. Sustainability is a major challenge and we are reaching a critical inflection point, one that matters beyond individual companies. To transform the entire value chain and eco-system, it is critical that industry players, policy makers and academia develop the solution collectively for our future.”

Many Semiconductor MNC companies have already started on the sustainability journey but may be at different stages of it, and there are common challenges with varied approaches to address them. For sure, it is no easy task, with no readily available solutions. The common approach is to explore innovative solutioning

by collaboration, thinking out of the box and the potential need to explore beyond the electronics sector.

**“**Mr Dan Steele, Senior Director, Global EHS and Security Operations of GlobalFoundries highlighted that “Sustainability must not be viewed only as a competitive economic advantage, but instead it should be viewed as fostering a company and industry’s longevity. As an example, segregating and repurposing waste sludge into the construction industry to enhance cement strength, reduces the impact to our landfill and helps the circular economy. Such sharing of learnings will help the whole industry in the sustainability goals.”



It is also important to bring SMEs along on the sustainability journey, as they are the suppliers and have great potential to be great solution providers.









“At bbp, being an innovator in the space of energy efficiency and digitalization, we have supported multiple semiconductor manufacturers to decarbonise by reducing their cooling systems’ energy usage at \$0 upfront investment. Such “Pay as You Save” models could be deployed to other parts of the semiconductor value chain, enabling both SMEs and MNCs to reduce their Scope 2 emission at zero financial risk and minimum disruption to existing operations”, commented by **Mr Hoe Boon Chye**, CEO of bbp.

“By now it’s obvious the semiconductor industry will trans-

form for a greener future. SSIA members make that possible, in both the strategy, technology, and execution,” said **Ms Dallal Slimani**, Semiconductor Segment VP at Schneider Electric. “My company, for example, has the expertise and solutions for semiconductor players to reduce their energy use, replace their energy sources with clean alternatives, and engage their supplier value chain to chop down scope 3 emissions. Locally in Singapore, one example is our *Kickstarter Decarbonization Program*, which helps SMEs chart a clear course to achieve their sustainability goals.”

Sustainability focuses on the long-term, for our future generations, leaving our people and planet better than it is today. Together, we hope to bring the Semiconductor eco-system on board the sustainability transformation journey and collectively collaborate and innovate towards a Greener Semiconductor industry.

## List of organisations participating in the Singapore Semiconductor Sustainability Committee

-  **bbp**
-  **Carbon Trust**
-  **GlobalFoundries**
-  **Micron Technology**
-  **Schneider Electric**
-  **Soitec**
-  **STMicroelectronics**
-  **Singapore Semiconductor Industry Association**

CONTRIBUTED BY

**JULIE KOH**

Strategic Programs Director  
SSIA





# Fully-fitted Wafer Fab Facility Ideal for Semiconductor Companies at 30 Tampines Industrial Ave 3



Strategic location within an established ecosystem of semiconductor companies



Floor-to-floor ceiling height of up to 4.5m



High floor loading of up to 30 kN/sqm at production area



Fitted with production area, clean rooms and ancillary offices for quick start-up and better cost efficiency

Two-storey B2 industrial space

Total NLA of approx. 9,500 sqm with potential built-up area of approx. 38,000 sqm

Available for single-tenant occupancy with option for customisation



Ancillary Offices



Clean Room Facility



Ready-fitted Production Area



**Contact Us Now**

[sg.marketing@capitaland.com](mailto:sg.marketing@capitaland.com)  
or scan QR Code for more details



# SUSTAINABLE DESIGN

**P**romoting and supporting sustainability is the urgent need of hour since it affects the immediate future to the long term. We all have responsibility towards our finite resources, climate changes, biodiversity and ecosystem.

Sustainability refers to meeting the needs of the present without compromising the ability of future generations to meet their own needs. It is about balancing economic, social, and environmental considerations to ensure that we can continue to thrive while preserving our planet for future generations.

Cleantech emphasizes in following important aspects in their operations to ensure sustainability is built in the operations.

- 1 **Sustainable scrubbers' system to reduce CO<sub>2</sub> Emission** - Conventional CO<sub>2</sub> emissions can be cut by as much as 80% with the use of plasma and heated type scrubbers. Plasma or heat is used by these scrubbers to remove the contaminants from the exhaust gas, making them an effective tool in the fight against air pollution.
- 2 **Selection of piping components during the design:**
  - a **Pressure Drop Calculation:** First, it reduces the energy required to move fluid through the system, which can lead to significant energy savings. Second, it can improve the overall efficiency of the system, reducing the amount of energy that is wasted as heat. Third, it can increase the capacity of the system, allowing more fluid to be transported with less energy.
  - b **Material selection:** By selecting piping components such as

valves, fittings, and piping material with low frictional resistance, engineers can reduce the pressure drop in the system. This can be achieved by choosing components with larger diameters, smoother surfaces, and more gradual turns, which reduce the resistance to fluid flow and minimize turbulence.

- 3 **Resource efficiency:** In the context of Industry 4.0, resource efficiency involves the development of processes that optimize the use of materials and energy, while minimizing waste, emissions, and resource depletion. By designing and implementing resource-efficient processes, companies can not only reduce their environmental footprint but also increase their profitability and competitiveness.
- 4 **Lifecycle thinking:** Considering the entire lifecycle of a product or process, from raw material extraction to disposal or reuse, to minimize environmental impact. This approach involves the adoption of technologies and strategies that promote sustainable production, such as the use of renewable energy, smart energy management systems, and circular economy models.
- 5 **Water conservation:** Minimizing water use and wastewater discharge by recycling and reusing water, and using technologies that require less water.
- 6 **Stakeholder engagement:** Engaging with stakeholders, including employees, customers, and communities, right from the beginning of the project life cycle to ensure that their needs and concerns are captured and addressed in the design and operation of facilities and processes.



Figure 1 - Plasma Type Scrubbers

- 7 **Team Building:** Fair employment practices are a key aspect of sustainable team building, as they ensure that employees are treated with respect, dignity, and equity, and have access to opportunities for growth and development. This includes fair wages, benefits, and working conditions, as well as policies and programs that promote diversity, inclusion, and work-life balance.
- 8 **Encouragement:** Maintaining lean hierarchy and open-door policy to encourage new ideas and design thinking towards sustainability.
- 9 **Partnership:** Respecting partner's competency and complementing the shortcomings using our vast network of partners and hence creating win-win situation.
- 10 **Ownership:** Creating lowest cost of ownership to customer by ensuring experts pitch-in to their domain of competence.

Finally, sustainability is important for social equity and justice. Sustainable development must be inclusive and address the needs of all members of society, including marginalized communities. By promoting sustainable practices and policies, we can help to improve economy, generate healthy outcomes, and create more equitable societies.

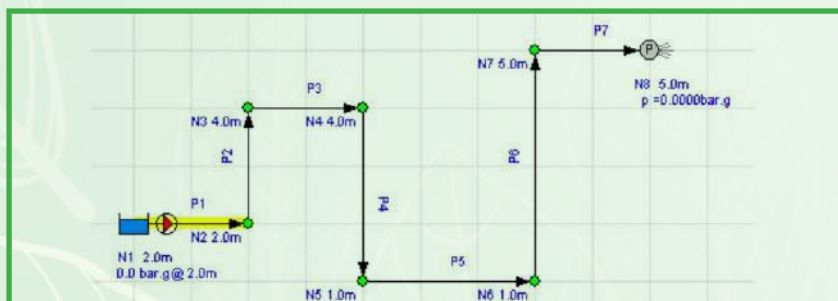


Figure 2 - Pipe Elevation Changes and effect on pressure loss

CONTRIBUTED BY

**Cleantech Services  
Pte Ltd**





# ADVANCING SUSTAINABILITY IN THE SEMICONDUCTOR INDUSTRY

**M**eridionale Impianti (MI) supports the semiconductor industry as a global partner to provide a range of services from designing, manufacturing, and installing of Ultra-Pure Gas and Chemical Systems; providing economical solutions to refurbish and supply chamber spare parts; manufacturing Back-End Burn-in Test Systems; and designing and commissioning of Process & industrial automation.

MI has been in the semiconductor industry since the 1980s. We recognize that green technologies and sustainability in the industry have become increasingly important, and companies are placing more emphasis on reducing their carbon footprint and preserving the environment.



## SIGNIFICANT TRENDS IN THE INDUSTRY:

- 1 **Energy-efficient chips:** The semiconductor industry is focused on developing energy-efficient chips for various applications, including mobile devices, data centers, and automobiles. Energy-efficient chips can minimize power consumption, reduce heat dissipation, and save energy compared to their traditional counterparts.
- 2 **Recycling and waste reduction:** As the demand for electronic products increases, so does the production of electronic waste. Semiconductors are developing ways of recycling and reducing e-waste through improved processes and sustainable practices. Recycling, refurbishing, and re-manufacturing are some of the environmentally friendly methods employed by the industry to reduce the environmental impact. Meridionale Impianti actively embraces the recycling practice by collaborating with industries, universities, and research-centers to explore new concept systems capable of purifying gases and chemical compounds heavily used in the semiconductor manufacturing process to be reused for a less critical scope.
- 3 **Use of renewable energy:** Like many other industries, semiconductors are increasingly utilizing renewable energy sources like wind, solar, and geothermal power. Renewable energy usage helps to reduce greenhouse gas emissions and decrease the carbon footprint. In this particular area, Meridionale Impianti invests 10% of its R&D yearly budget in designing and developing high efficiency power monitoring systems, and a full ecosystem to manage solar and geochemical energy production and distribution.

In conclusion, the semiconductor industry is making significant strides in sustainability by reducing waste, energy consumption, and environmental impact. Through sustainable practices and innovative technologies, the industry can continue to reduce its carbon footprint while meeting the demand for high-performance electronic devices as such, Meridionale Impianti push much of its effort to provide edge-of-technology solutions to contribute to the environment preservation.



## CONTRIBUTED BY

**Meridionale Impianti  
Singapore Pte Ltd**



Meridionale Impianti Singapore Pte Ltd		
Type of membership	MNC	
38 Ang Mo Kio Industrial Park 2 #01-12 Singapore 569511	Tel: (65) 6484 4400 Fax: (65) 6484 4477	Email: giovanni.raffa@merimp.com Website: www.merimp.com
Sector	Construction and Infrastructure for semiconductor industry	

# PARTNERING FOR SUSTAINABILITY

The semiconductor industry has been a driving force behind technological innovation for decades. However, with the increasing awareness of climate change and environmental issues, there is a growing focus on sustainability in the industry. This has led to a trend towards using sustainable chemicals and solutions in semiconductor manufacturing.

**A**s a result, companies are actively striving to minimize the use of harmful substances and adopt eco-friendly manufacturing processes. For example, Resonac HD Singapore, the largest independent HD media producer in the world, partnered with Nagase to implement a VOC gas recovery system at their site, leading to a significant reduction in greenhouse gas emissions during their production process. This successful initiative enabled the customer to achieve a remarkable 77% decrease in CO<sub>2</sub> emissions and was featured at the National Environment Agency's EENP awards in 2020.

alternatives that minimize the use of hazardous substances. For example, in 2020, the European Union expanded the ban on N-methyl-2-pyrrolidone (NMP) in semiconductor production, limiting formulations with NMP concentrations exceeding 0.3% unless specific conditions are met. This prohibition aims to mitigate the risks associated with NMP exposure in semiconductor manufacturing and encourage the adoption of safer alternatives. NMP is commonly used in various manufacturing processes such as resist removal, stripping of metal-covered silicon layers, post-metal dry etch cleaning, and removal of organic matter from wafers. Fortunately, viable replacement options are available, including non-NMP and water-based solutions that offer effective solvency properties.

Recently in Japan, Nagase helped a well-established semiconductor manufacturing company to make a successful shift from conventional NMP-based stripping chemical

to a water-based solution developed by Nagase Chemtex. This was driven by their commitment to sustainability and the demand from their end customers.



In summary, with the increasing demand for sustainable products and manufacturing practices, I anticipate further advancements in sustainable chemicals and materials in the semiconductor industry. As part of Nagase Group, I am confident that we will continue to contribute to these developments and make ongoing efforts towards shaping a more sustainable future for the industry and future generations.



CONTRIBUTED BY

**CHESTER WAN**

Strategic Planning Office  
Nagase Singapore Pte Ltd



**NAGASE**  
Delivering next.



In the pursuit of sustainable supply chains, the industry recognizes the importance of partnering with suppliers to establish stringent chemical management protocols and embrace safer



# A NEW LOOK FOR ASM

For over half a century, ASM has been on the cutting edge of semiconductor innovation. The company recently introduced a refreshed brand identity that reflects its history and current and future aspirations.

**A**SM's new look includes bold new brand colors, with purple as the standout eye-catcher and sand as a nod to silicon, a key element in the creation of semiconductors. In addition, an updated logo, which is simpler, cleaner, and a visual design derived from the angles of its crystal-shaped logo, will connect all ASM communications. All these elements work together to create an eye-catching new style for ASM across the globe.

## AHEAD OF WHAT'S NEXT

ASM also launched its new tagline: "Ahead of what's next," created to reflect the company's commitment to being a responsible corporate citizen, helping to shape tomorrow's world, and improving people's lives.

By enabling ever smaller, more powerful semiconductors, ASM supports the industry in pursuit of Moore's Law. And with exciting new technologies on the horizon, ASM contributes daily to crucial advances in fields such as 5G, electric mobility, cloud computing, AI, biotech, and medicine.

Key ASM technologies like atomic layer deposition (ALD) and epitaxy play a

critical role in enabling the transition to next-generation devices and services. And with the acquisition of LPE in 2022, ASM has a powerful position in the rapidly expanding market for silicon carbide epitaxy equipment.

## SIMPLY ASM, REIMAGINED

This is the first major brand-identity refresh in ASM's history, reflecting an ambitious new step in the company's journey, yet the organization's mission and purpose remain the same. ASM is committed to enabling their customers' success and supporting their roadmaps by creating leading-edge semiconductor process products, services, and new materials. The company focuses on driving innovation and exploring opportunities and solutions that address the industry's critical issues and open up new path-

ways to success.

ASM cares deeply about its people, society, and the planet. With over 4,000 employees in 15 countries, it believes in fostering an inclusive and diverse workplace where all employees can thrive and develop their potential.

With its new branding, ASM remains committed to leading the way in semiconductor innovation by always staying ahead of what's next.

Find out more at [www.asm.com](http://www.asm.com) and follow ASM on social media.

Follow ASM



CONTRIBUTED BY



# Achieving **Business Sustainability** through Waste Management Services

- ✓ NEA approved environmental company
- ✓ Experienced and reliable team
- ✓ Meet NEA & PUB disposal requirements



## COMPANY PROFILE

**Hock Chuan Hong Corporation Pte Ltd (HCHC)** was incorporated in 2009. From a humble start up in handling hazardous oily waste, we have been constantly progressing, upgrading and extending our environmental services, with a strong vision and mission by the board of directors to provide our customers with one-stop disposal services throughout.

**Call 6261 1377 / 6261 1947  
for more info!**

### **Our diversified range of services includes the following:**

1. Waste Oil Disposal
2. Used Cooking Oil Disposal
3. General/Industrial/Commercial Waste Disposal
4. Sewerage/Grey Water Disposal
5. Spent Acid/Alkaline Disposal
6. Spent Coolant/Oily Water Disposal
7. Hazmat Transportation Logistics
8. Isotanks Leasing
9. Oil/ Chemical Trading
10. Laboratory Testing Services
11. Wastewater Contaminated with Chemical Disposal

**Visit Website  
for more info!**





# ADVERTISE WITH US



## VOICE Magazine

By the industry, for the industry

International readership of over 8000 comprising of industry leaders and players in semiconductor and related sectors

1 full page    H 255mm x W 200mm  
Half page    H 127mm x W 200mm

## Special Package

Holistic overview of your company's communication strategy through marketing with VOICE Magazine

- **Full page** – front inside cover or back inside cover (subject to availability)
- **2 full inside pages** – for advertisement or advertorial story
- **VOICE Magazine Landing Page Banner**



## Electronic Direct Mail (EDM)

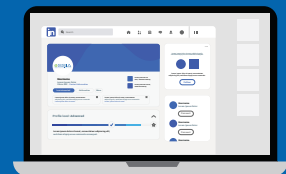
Strong targeted subscriber base

\*EDMs from external vendors are sent a max. of twice a week by SSIA. SSIA reserves the right to curate if/when EDMs are distributed.



## SSIA Website Homepage Banner

Advertisements will be displayed for 2 months



## LinkedIn Post

Followed by over 15,000 people

\*LinkedIn posts are uploaded a max. of twice a week by SSIA. SSIA reserves the right to curate if/when LinkedIn posts are uploaded.

Contact us at [yvonne@ssia.org.sg](mailto:yvonne@ssia.org.sg) for more information or for bespoke AD space

# SUBSCRIBE TO OUR MAILING LIST

Join our mailing list to receive the latest updates about SSIA, partner events, training courses, industry news, and more!



[ssia.org.sg](http://ssia.org.sg)



Singapore Semiconductor Industry Association



SSIAsemicon



SSIAsemiconductor





Passionate about the electronics sector? We want you!

## **Semiconductor Active Youth (SAY) Ambassador Programme**

The Semiconductor Active Youth (SAY) Ambassador Programme is a one-year programme meant to create a robust pipeline of young talent for the semiconductor industry, working in close partnership with both Institutes of Higher Learning (Polytechnics and Universities) and leading companies in the industry. Ambassadors gain valuable insights and hands-on experience in the semiconductor industry, and training and mentorship opportunities with industry leaders from the companies across the value chain.

Companies will pair the mentors with the ambassadors and to also provide with relevant industry content. To pilot this programme, six queen bee companies will be participating in the first year, with more to come.

If you are interested in participating, please contact [yvonne@ssia.org.sg](mailto:yvonne@ssia.org.sg) and [xingyun@ssia.org.sg](mailto:xingyun@ssia.org.sg) with your CV. Kindly note that applicants will be screened and we will notify successful candidates upon acceptance.



We have launched a  
programme just for you!  
Be the voice and future  
of the industry.

**Find out more!**





Follow us



Singapore Semiconductor  
Industry Association



@ssiasemiconductor

**60 PAYA LEBAR ROAD, #08-44**

PAYA LEBAR SQUARE, SINGAPORE 409051

Tel: 6679 1571 | Web: [www.ssia.org.sg](http://www.ssia.org.sg)



Now available on  
**Magzter Digital  
Magazine Store**



**Singapore  
Semiconductor Voice:**  
[www.ssia.org.sg/voice](http://www.ssia.org.sg/voice)



[www.ssia.org.sg](http://www.ssia.org.sg)  
**\$12.00 incl GST**