

# SINGAPORE SEMICONDUCTOR VOICE

Volume 30 • T05SS0291A



## Nurturing Brilliance in the Semiconductor Universe

Follow us



Singapore Semiconductor  
Industry Association



@ssiasemiconductor

60 PAYA LEBAR ROAD, #08-44

PAYA LEBAR SQUARE, SINGAPORE 409051

Tel: 6879 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

Growing and Developing a  
Skilled and Dynamic Workforce  
for the Semiconductor Industry

p12

My Experience into the  
Semiconductor Universe  
as SAY Ambassadors

p22

The Impact of Emerging  
Technologies, Particularly AI,  
on the Recruitment Landscape

p44

# 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



## FOREWORD BY Executive Director

In an era where technological advancements shape the contours of economies and societies, the semiconductor industry stands at the forefront of innovation and growth. From designing and manufacturing cutting edge technologies to ensuring efficient supply chain management, the semiconductor industry relies on a highly skilled and diverse workforce. As we unveil this edition of Voice Magazine, we do so in conjunction with Electronics Industry Day 2024, our largest industry's student outreach platform.

I appreciate the unwavering support from companies in ensuring the success of our outreach initiatives. Their continuous dedication has been instrumental in our achievements. The collective effort of companies to drive these outreach initiatives underscores the power of unity in propelling the industry forward. Their collaboration amplifies the impact of these initiatives, enabling them to reach more students, spark more interest, and ultimately, inspire more future leaders in the semiconductor industry. Such unity not only strengthens the industry's human capital pipeline but also cements its position as a key player in shaping the world's technological advancements.

As we move further into 2024, we stand at a critical juncture in the semiconductor industry. This year, we anticipate seeing unprecedented levels of collaboration, fostering a more resilient global supply chain. As the industry navigates the complexities of trade dynamics, environmental sustainability, and evolving consumer needs, this cohesive approach becomes integral to ensuring continuity and resilience. Moreover, 2024 holds immense promise for local companies and startups within the industry. As global alliances strengthen and supply chains become more robust, opportunities for growth and innovation are proliferating.

SSIA is excited to announce a series of events and activities to further highlight the vibrancy of Singapore's semiconductor industry. We will be hosting the Semiconductor Women's Forum in March, an event devoted to celebrating and empowering women in the industry. Following this, we have planned the Semiconductor Business Connect in July, a unique networking opportunity for companies to interact and potentially collaborate. This year promises to be thrilling and momentous for the industry. Companies interested in sponsoring or participating in these activities are encouraged to reach out to the SSIA Secretariat. The involvement and support of every company, large or small, is crucial in driving the industry forward and making these events a success.

SSIA will continue to focus on these 3 areas.

1. Growing and developing our workforce.
2. Strengthening and growing our local ecosystem.
3. Sustainability.

Together, we can forge a brighter future for Singapore's semiconductor industry. United in our pursuit of excellence, let us attract the brightest talents, strengthen our local companies, and champion sustainability. Our collective efforts will not only elevate our industry but also contribute to a sustainable and prosperous Singapore. In unity, we find strength; in collaboration, we discover endless possibilities.

**ANG WEE SENG**  
Executive Director  
Singapore Semiconductor Industry Association (SSIA)

### SECRETARIAT TEAM

**EXECUTIVE DIRECTOR**  
Ang Wee Seng  
weeseng@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

**STRATEGIC PROGRAMS DIRECTOR**  
Julie Koh  
juliekoh@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 UPDATES

- 01 Foreword by Executive Director
- 04 SSIA Annual General Meeting: A Testament to Vibrancy and Engagement
- 06 ISES Event
- 07 Fostering Stronger Partnership to Drive Significant Growth in the Semiconductor Industry
- 09 IHRP Event
- 12 Growing and Developing A Skilled and Dynamic Workforce For The Semiconductor Industry

## NURTURING BRILLIANCE IN THE SEMICONDUCTOR UNIVERSE

- 16 Work-Study Programme supported by the Semiconductor Industry
- 22 My Experience into the Semiconductor Universe as SAY Ambassadors
- 28 Empowering Talent at ASM
- 29 The Dream of Edge AI
- 30 Micron Expands STEM Education Programs with Its First Chip Camp in Singapore
- 32 Discover the HOYA Electronics Experience: Innovation, Growth, and Well-Being

**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.

- 33 Creating a Culture of Opportunity: How Infineon Attract Emerging Talents
- 34 Future Trends in Optoelectronics
- 37 Bracing towards Congruency for a Diverse Workforce
- 38 ASMPT - Enabling The Digital World Through Our People
- 39 VIS's Holistic Talent Development Journey
- 41 Join UMC to Unleash The Power of Technology for a Better World
- 42 AMF: Pioneering Silicon Photonics Fab for a Connected World
- 43 Spark Curiosity and a Lifelong Love of Learning: Nurturing Brilliance at Silicon Labs and Beyond
- 44 The Impact of Emerging Technologies, Particularly AI, on the Recruitment Landscape
- 46 Igniting the Passion for R&D in Microelectronics
- 49 Silicon Box - Cultivating the Excellence that will Shape the Technology Landscape of Tomorrow

## INNOVATION

- 50 Chips and Science Act
- 51 Transforming Semiconductor Production in Singapore with Advanced Manufacturing
- 53 A\*STAR and centrotherm Establish Partnership to Advance 200mm Silicon Carbide Technology

## TRADEWINDS

- 54 Semiconductor Tradewinds

# SSIA Mark Your EVENTS

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



## ELECTRONICS INDUSTRY DAY 2024

24  
Jan

ITE College  
Central



### Nurturing Brilliance in the Semiconductor Universe

At the heart of every semiconductor innovation lies the brilliance of the people who envision, create, and collaborate. Our theme, "Nurturing Brilliance in the Semiconductor Universe," shines a spotlight on the industry's most valuable asset: its people. With unwavering dedication and boundless creativity, individuals from diverse backgrounds propel the semiconductor industry forward. This theme underscores the pivotal role of people in every circuit, every breakthrough, and every stride toward a future defined by technological excellence and global impact. Special highlight only on Work Study Programmes. The event will examine how initiatives to prepare students for the industry have evolved over the decades. It will highlight the Work Study Programmes as a prominent aspect of this evolution, with the Semiconductor industry embracing it.

MARCH  
2024

### SEMICONDUCTOR WOMEN'S FORUM



#### Count Her In: Accelerating Gender Equality Through Economic Empowerment

In line with the industry's push towards gender equality in the workforce, this year's theme aims to promote and accelerate gender diversity in the semiconductor industry. We believe that empowering women through economic opportunities is essential for achieving a more inclusive and diverse industry. This month will feature Semiconductor Women's Forum, a platform that highlights women's achievements in the semiconductor field and to attract young female leaders to the industry since the inception of this podium in 2021.

JULY  
2024

### SEMICONDUCTOR BUSINESS CONNECT



#### Catalysing Collaboration, Fuelling Innovation

Collaborative industry-wide participation in Semiconductor Business Connect is more than just a network, it is an ecosystem, a dynamic hub where ideas converge, partnerships are forged, and innovation finds its wings.

# SSIA Annual General Meeting: A Testament to Vibrancy and Engagement

The Singapore Semiconductor Industry Association (SSIA) recently held its Annual General Meeting (AGM) on 23rd November 2023 at Novotel Singapore at Stevens. It was a gathering of innovative minds united by common goals and a shared commitment to pushing the boundaries of Singapore's semiconductor industry.



This year's AGM was marked by a remarkable surge in participation, easily making it our most attended AGM to date. This is not just a statistical achievement, but a testament to the increased active engagement by our members. They are the driving force behind SSIA, propelling the association forward with their dedication and support. But beyond the numbers, the high turnout is reflective of something even more significant. It mirrors the vibrancy of Singapore's semiconductor industry, a sector that continues to grow in importance and influence.

Jennifer Teong, the Chairman of the SSIA Board, extended a warm welcome to all the members present. She also took the opportunity to thank all the members who have contributed to the association's success over the years. Additionally, she extended her appreciation to the Secretariat for their unwavering commitment to executing the



association's vision and mission. This was followed by a presentation by SSIA Executive Director, Ang Wee Seng, who shared updates on the latest developments in the semiconductor industry and SSIA's proactive efforts in fostering the growth of the semiconductor industry in Singapore.

Wee Seng highlights SSIA's continued focus in three key areas, which are as follows:

1. **Growing and Developing Workforce**
2. **Strengthening and Growing the Local Ecosystem**
3. **Driving Sustainability**

Throughout the past year, the SSIA has made significant strides in realizing its objectives. In terms of growing and developing the workforce, the association organized its most extensive student outreach activities to date, aiming to create awareness and attract younger talents to the semiconductor industry. This initiative resulted in an impressive number of student engagements, indicating a promising future talent pool for the industry. We are proud to report a remarkable job placement

record achieved through both the Career Conversion Programme (CCP) and the Job Redesign Reskilling (JRR) program this year. Furthermore, the SSIA Women's Forum, saw its largest turnout and participation ever. This event symbolizes a crucial step towards promoting diversity and inclusivity within the industry, highlighting the association's commitment to fostering a vibrant and diverse ecosystem.

SSIA is cognizant of the need for the industry to adopt new technologies such as additive manufacturing, artificial intelligence, and automation. As part of its commitment to fostering progress, the association has been instrumental in aiding the industry's foray into these forward-looking areas. In addition, SSIA is actively assisting companies in expanding their global presence and has expressed its commitment to further strengthening these endeavours in the upcoming year. This international expansion strategy is designed to position Singapore's semiconductor industry as a leading global player.

The recent announcement of the Consortium Operation and Technology Roadmapping (COTR) illustrates



SSIA's innovative approach. COTR, in partnership with A\*STAR, is designed to map general trends and directions for the industry, aligning with the industry transformation map. It aims to identify industry needs and generate solutions or workarounds to common pain points, leading to collective gains. This initiative proves SSIA's commitment to addressing industry challenges and advancing Singapore's semiconductor industry.

Recognizing the profound implications of semiconductor activities on the environment, SSIA has established an industry-led committee specifically dedicated to driving sustainable practices within the sector. The committee is strategically focused on energy and water usage reduction, waste management, and carbon footprint reduction. Through this initiative, SSIA aims to not just minimize the environmental impact of industry operations but also to establish Singapore's semiconductor industry as a beacon of sustainable practices in the global arena.

This year, the SSIA has outdone itself by organizing and co-running over 80 events and initiatives that reached more than 20,000 participants. These engagements ranged from the Electronics Industry Day, Semiconductor Women's Forum, and the Semiconductor Business Connect to the highly-anticipated SSIA Summit. A landmark celebration was held for the industry on 19th September, known as the Singapore Semiconductor 55 Dinner. This event, which followed the SSIA Summit, saw close to 1,500 guests in attendance - making it our industry's most massive physical dinner gathering to date. We were incredibly honoured by the presence of Mr Gan Kim Yong, the Minister for Trade and Industry, who graced the event as our esteemed Guest of Honour. These achievements underscore the SSIA's relentless efforts to foster a vibrant and collaborative semiconductor community in Singapore.

Wee Seng ended his presentation with the following quote.

*Together, we can forge a brighter future for Singapore's semiconductor industry.*

*United in our pursuit of excellence, let us attract the brightest talents, strengthen our local companies, and champion sustainability. Our collective efforts will not only elevate our industry but also contribute to a sustainable and prosperous Singapore. In unity, we find strength; in collaboration, we discover endless possibilities.*



## ISES Event on 7 November 2023



SSIA had the great honour of participating in the inaugural International Semiconductor Executive Summits Southeast Asia (ISES SEA) at Penang's Shangri-La Rasa Sayang Resort & Spa on 7 November 2023. The Guest of Honor for this event was the Chief Minister of Penang, YAB Chow Kon Yeow. This event marked a significant milestone, bringing together global and local industry senior leaders together to delve into the future of the semiconductor industry.

beyond backend manufacturing and venturing into frontend fabs, IC design, R&D etc, with the support from their government. There was also much discussion on supply chain resilience, workforce and talent development and the need for collaboration and bringing the latest state of the art innovation into Malaysia to help strengthen the local companies and close the gap with other leading countries.

SSIA sincerely extends our heartfelt

congratulations to the organizers, and a special mention to Salah Nasri for his exceptional work. Salah's passion and commitment to the platform were the linchpin of the event's success. His burning desire to see the industry thrive is evident, and companies aligning with his vision are already reaping substantial benefits from the networking sessions ISES is organizing all around the world. It is this kind of dedication that connects the global industry's leaders and propels our industry forward.

SSIA Executive Director, Ang Wee Seng, had the privilege to be invited as one of the panel speakers to discuss on the topic of "Opportunities and challenges arising from the changing semiconductor geopolitical climate". It is interesting to note that Malaysia is planning to go



**CONTRIBUTED BY**

**Amy Ang**  
Director for Business  
Development and Partnership



## Fostering Stronger Partnership to Drive Significant Growth in the Semiconductor Industry



discussing topics such as US CHIPS implementation, updates from Oct 17th export controls and most importantly, having a spirited exchange of ideas and collaborations that would shape the future of our industry.

As the evening unfolds, we introduced the delegation to a savouring dinner at RedDot Brewhouse. Pairing their signature green lager with a diverse menu offerings, from succulent grilled meats to flavourful seafood dishes, new friendships are forged.

This visit by the SIA delegation marks another step towards a stronger partnership between our organizations. Together, we aim to drive significant growth in the semiconductor industry.

It was an absolute honour to welcome John Neuffer and the esteemed delegation from the Semiconductor Industry Association (SIA) to Singapore for their second visit this year.

The visit started with an engaging roundtable discussion with the local industry leaders, where we discussed interesting, yet critical and important topics that are set to shape the future of our industry. The evening was just as remarkable, with a delightful dinner at RedDot Brewhouse. Green beer!

This visit marks yet another step towards a stronger partnership between our organizations. I am eagerly looking forward to fostering closer collaboration with John and his team. Together, we aim to drive significant growth in the semiconductor industry.

Early December 2023, John Neuffer and his distinguished delegation from the Semiconductor Industry Association (SIA) visited Singapore for the second time this year. Singapore was the first stop within the South East Asia region where they met with government bodies and industry partners to engage on key topics surrounding the developments of the semiconductor industry in their respective countries.

Together with our local industry leaders, we held a roundtable session,



**CONTRIBUTED BY**

**Jasmine Tai**  
Business Development  
and Partnership Manager



**March 2024**

# Semiconductor Women's Forum

## Together, We Inspire Inclusion

In line with the industry's push towards gender equality in the workforce, this month's theme aims to promote and accelerate gender diversity in the semiconductor industry. We believe that empowering women through economic opportunities is essential for achieving a more inclusive and diverse industry. This year will feature Semiconductor Women's Forum, a platform that highlights women's achievements in the semiconductor field and to attract young female leaders to the industry.

Join us as we **#InspireInclusion** for all in the Semiconductor Industry as part of International Women's Day 2024

If you would like to support or sponsor this event, email us at : [secretariat@ssia.org.sg](mailto:secretariat@ssia.org.sg)



## IHRP Event on 15 November 2023

**S**SSIA was honoured to be invited to join in IHRP's annual flagship event, the People Behind People Forum on 15 November 2023 at Sands Convention Centre, which was graced by Minister Tan See Leng. This forum, attended by more than 600 delegates representing over 80 organisations from diverse sectors and industries, brings together business leaders and the HR community to analyse trends impacting businesses and discuss ways that businesses could pivot their people strategies to prepare for the future. Dr Tan spoke about how HR can play a critical role and act as a key enabler to support business and workforce transformation in the 3As reflected in the theme of this year's forum:

Earlier this year, MOM announced a five-year HR Industry Transformation Plan (HR ITP) which sets out a roadmap to strengthen the HR profession and raise HR capabilities. HR is about hunting for, attracting and retaining talent, and always keeping talent on the edge – sharp, precise and forward-looking. One key strategy is to adopt and leverage technology, and harness the potential of technology to improve productivity. Job redesign will be needed to make sure that technology is used effectively, with tasks and roles adjusted to fit the changing work environment in a precise manner.

The Job Redesign Centre of Excellence (JRCoE) was launched during this year's event, and SSIA was 1 of the 20



TACs, representing 14 industry sectors, who joined in the pledging of support of this JRCoE.

1. *How organisation must Adapt for the future of workforce*
2. *Augment with Technology*
3. *Accelerate progressive people practices*



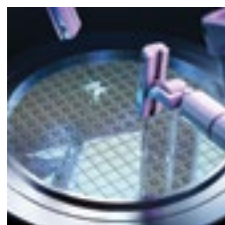
**CONTRIBUTED BY**

**Amy Ang**  
Director for Business  
Development and Partnership



# TRAIN, UPGRADE & RESKILL with SSIA

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.



## WAFER FABRICATION IN SEMICONDUCTOR INDUSTRY (3 DAYS)

This course provides participants with the relevant knowledge and skills of the Wafer Fabrication process in the Semiconductor Manufacturing Industry. Participants will be introduced to facilities in the manufacturing process such as cleanrooms and handling of hazardous chemicals, various stages in Semiconductor Manufacturing from front end to back end; fabless, manufacturing flow and understanding of the fabrication processes for integrated circuits (IC) and statistical process control. There will be hands-on sessions working with process equipment and metrology tools in the cleanroom. The Industry 4.0 technologies and its benefits to the Semicon Industry will also be taught in the course.

By the end of the course, participants will be able to:

- Identify the various sectors of the Semiconductor Industry ecosystem
- Describe the facilities support needed for Wafer Fabrication
- Describe the procedures for operating in cleanroom and handling hazardous chemicals
- Describe the process flow for integrated circuit (IC) manufacturing
- Describe the various processes for Wafer Fabrication
- Operate the Wafer Fabrication processes
- Apply the principles of the use of statistical process control charts for process control
- Identify key Industry 4.0 technologies that accelerate digital transformation of Manufacturing/ Operations within the Semiconductor & Electronics Industry
- Determine the benefits brought about by Industry 4.0 technologies to address the challenges in the Semiconductor & Electronics industry.

### Who is this suitable for?

All engineering or technical personnel under the Electronics Skills framework; associate engineer for process, quality, product, integration, equipment and facility for the Semiconductor & Electronics Industry.

### Next runs dates:

**11-13 March 2024**

**4-6 June 2024**

For all other courses,  
please visit our website:  
[https://ssia.org.sg/  
upcoming-training-courses/](https://ssia.org.sg/upcoming-training-courses/)



# 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.

### Theme

Thriving Through Change and Disruption:  
Building a Resilient Ecosystem

### For Whom

Senior level managers and directors, with more than 15 years of experience, who are part of the company's succession plan with responsibility for strategic decision-making, and this includes heads of business units and senior functional heads

### Course Fees

Singaporean: \$6,000 + GST  
PR/Foreigner: \$12,000 + GST

## Run 10

### Module 1

23<sup>rd</sup> to 26<sup>th</sup> April 2024

### Module 2

7<sup>th</sup> to 10<sup>th</sup> May 2024



For find out more, please email [velinda@ssia.org.sg](mailto:velinda@ssia.org.sg)

# Growing and Developing A Skilled and Dynamic Workforce For The Semiconductor Industry

Singapore dynamic and rapidly evolving economy places a premium on human capital. The country's unique position as a global business hub has led to diverse talent needs across industries such as technology, finance, healthcare and especially the growing presence of the semiconductor industry in Singapore. To sustain its growth trajectory and maintaining its competitive edge, it is crucial for the nation to cultivate a robust talent pipeline. A strong and continuous growth in talent pipeline ensures a steady flow of skilled professionals who can meet the demands of emerging industries, drive innovation and contribute to Singapore's continued success.

At SSIA, we believe in establishing strong partnerships with companies, Institute of Higher learnings (IHLs) and schools which is fundamental to shaping a skilled workforce. Working closely with universities, polytechnics and ITEs, businesses can influence curriculum development, ensuring that graduates possess the skills relevant to the industry's evolving needs.

## Schools Outreach Initiatives

With the growing importance of science, technology, engineering and mathematics (STEM) fields, fostering interest in these disciplines among students continue to stay a vital part of our education. SSIA and member companies continue to play an active role in promoting semiconductor awareness to schools. SSIA has experienced remarkable success in our outreached



Career Fair at Catholic High School

programmes. We have implemented an unprecedented number of student outreach initiatives to significantly raise awareness about semiconductor industry.

Our outreached activities hit a record high of 54 activities which include school talks, workshops, career fairs and plant tours. This year, we managed to outreach to more than 5600 youths.

As part of our close collaboration with MOE, we had also seen an increase in the number requests for semiconductor awareness talks for teachers and educators. We are also increasing our school talks at Secondary schools and JC levels.



School talk at Newtown Secondary school



School talk at Spectra Secondary School and more



## Semiconductor Industry Sharing at Universities



SSIA sharing with students at TUM Asia - Innovation and Technology Management course - Strategy, Tactics and Operations.



NTU Career talk for EEE students.

## Diversity and Inclusion Initiatives



Building a talent pipeline should be inclusive and diverse. Companies should actively promote diversity and inclusion providing equal opportunities for all individuals regardless of gender, ethnicity, or background. A diverse talent pool brings varied perspectives and fosters innovation. In the recent years, semiconductor industry has made great strides in promoting diversity and inclusion. A prime example of this

progress is the growing engagement and endorsement we received for our annual Semiconductor Women's Forum, held in March this year.

## Company Investment in Skills, Training and Development

Continuous learning is key in today's rapidly changing job market. Companies and government agencies should invest in upskilling and reskilling programs to equip employees with industry relevant skill sets. This not only enhances the capabilities of existing workforce but also ensures a pipeline of skilled talent for the future.

Through the Career Conversion Programme (CCP), we have successfully placed a record number of job seekers

from another industry into our Semiconductor industry.

Additionally, we have been instrumental in supporting companies on their transformation journey by facilitating the adoption of the Redeployment and Job Redesign (JR) Reskilling. As part of SSIA's joint collaboration with WSG, we introduced the "Future Jobs" programme this year. This program is an industry driven initiative that helps to accelerate companies in its transformation journey. The Future Jobs program works within a triple transformation framework which enable companies to improve on its business transformation, technological transformation while upskilling and re-skilling their workforce. Companies can tap on Workforce Singapore's Career Conversion Programme (CCP) grant support while they continue to re-skill and upskill their workers.

Together, as an industry, we will continue to strive to grow and develop a skilled and dynamic workforce to support the thriving Semiconductor Industry.



### CONTRIBUTED BY

**Velinda Wee**  
Human Capital  
Development Director





# ELECTRONICS INDUSTRY DAY 2024

**24**  
Jan

ITE College  
Central

## 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, 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 in 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 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)



**JOIN US**

SSIA Electronics Industry Day is the largest student outreach platform for the semiconductor industry in Singapore, garnering support from nearly every major semiconductor company here. This platform serves as a showcase for companies to highlight the career opportunities within their organization and the exciting technologies they develop and manufacture. This presents an excellent chance for students to deepen their understanding of the industry and explore the diverse array of career paths that await them.

This year's theme, "Nurturing Brilliance in the Semiconductor Universe," shines a spotlight on the industry's most valuable asset: its people. With unwavering dedication and boundless creativity, individuals from diverse backgrounds propel the semiconductor industry forward. This theme underscores the pivotal role of people in every circuit, every breakthrough, and every stride toward a future defined by technological excellence and global impact.

Come join us at this year's SSIA Electronics Industry Day and immerse yourself in the dynamic world of semiconductors. Participate in captivating discussions and presentations, explore company exhibits, and uncover invaluable insights that shape the future of technology. This will provide you with a comprehensive understanding of the abundant career prospects available in this remarkable industry. Join the revolution that will shape tomorrow's future. Whether it's the chip powering your mobile phone or the ones driving the next wave of AI and quantum technologies, be at the forefront of innovation.

# Work-Study Programme supported by the Semiconductor Industry

**W**orkforce development has always been a key cornerstone to the growth of the semiconductor industry. Work-Study Programme enables individuals wanting to gain industry-relevant experience and skills through a work-study setup, transition to the workplace upon graduation. These programmes are highly supported by the semiconductor companies in partnership with IHLs (Institute of Higher Learnings).

**The ITE Work-Study Diploma (WSDip) programme** was launched in 2018 with an initial enrolment of around 100 trainees.

With the strong support by participating companies who have come on board to co-develop the curricula and co-train the trainees, today ITE has developed over 40 WSDip courses which cover Engineering, Business, Info-comm and Media domains. WSDip in Microelectronics is one of them being offered at ITE College Central to graduates of ITE and company trainees for them to upgrade their skills, obtain a diploma and build a career in semiconductor industry.

During the WSDip course, 70% to 80% of training are conducted at the workplace and 20% to 30% of training are carried out on campus. ITE also supports WSDip partner companies by helping to enhance the skills of company mentors and in-house trainers, through its Train-the-Trainer (TTT) programme. Under the programme, company trainers receive training that will enhance their skills in designing and delivering On-the-Job (OJT) training, as well as pedagogic and coaching skills so that they can be effective in imparting skills to the WSDip trainees.

Notably, 90% of the programme's graduates continued their careers in

the industry they were trained for. This sustained growth and achievement owes much to the support of companies that have embraced a collaborative approach to cultivate a talent pool through the WSDip programme which enables trainees to simultaneously acquire practical knowledge and experience.

To support more ITE graduates to upgrade, ITE will continue to expand the WSDip offerings and increase the WSDip places by working closely with industry partners to grow the outreach of the WSDip programme.



## Work-Study Programmes at GlobalFoundries: Nurturing Talent, Shaping Futures

In the ever-evolving landscape of the semiconductor industry, GlobalFoundries (GF) has been at the forefront of innovation and talent development through its Work-Study Programmes in partnership with NTU and ITE. Under these initiatives, students get a glimpse into the dynamic world of semiconductor manufacturing, gaining crucial experience for a future career in this industry while balancing their academic requirements.

### NTU Work-Study Degree Programme:

A programme that consists of a series of three internships in between academic terms, giving candidates up to 46 weeks of work experience. Since 2021, 16 students have participated in this programme, receiving on-the-job training and gaining exposure to the professional environment and developing practical skills.

### ITE Work-Study Diploma:

A curated 2.5-year Diploma programme offering full-time employees with a stable income, benefits, full course fee sponsorship and a well-defined career

path. Upon completion, trainees receive a nationally recognized diploma certificate. Under this programme, GF has hired 11 Associate Engineer trainees since 2022.

### Bridging Academia and Industry

The NTU and ITE Work-Study programmes are tailored to match the academic curriculum. Students are able to directly apply what they study in school to the real-world job environment through a hands-on learning experience in a world-class semiconductor manufacturing company.

### Real-world Impact and Industry-Relevant Projects

Students and trainees are actively involved in industry-relevant projects as part of these programmes. Through these projects, they gain exposure to cutting-edge technologies, enhancing their technical proficiency and fostering an innovative problem-solving mindset that is crucial in the semiconductor sector.

### Mentorship and Professional Development

During the duration of programme, students receive guidance from seasoned professionals, gaining industry insights and establishing valuable connections. This mentorship approach has proven effective in not only imparting technical knowledge but also in nurturing soft skills and professional etiquettes.

### Shaping the Future Together

GF remains committed to playing its role in shaping the industry's workforce of the future, through driving industry collaboration and talent cultivation. With the NTU and ITE Work-Study Programmes, we look forward to engaging more students in the exciting world of semiconductors.



### Connect with us

Instagram: @globalfoundries.singapore  
 Facebook: GlobalFoundries APAC  
 LinkedIn: GlobalFoundries



Develop your talent pipeline with SkillsFuture Work-Study Certificate leading to Diploma in Engineering (Electrical and Electronics)

Oct 2024    12 Months    ITE Graduates    Republic Polytechnic

**SKILLSFUTURE WORK-STUDY CERTIFICATE LEADING TO DIPLOMA IN ENGINEERING (ELECTRICAL AND ELECTRONICS) BY REPUBLIC POLYTECHNIC**

The SkillsFuture Work-Study Certificate Leading to Diploma in Engineering (Electrical and Electronics) is a **12-month** programme. It aims to equip ITE graduates with the necessary skills and knowledge to support the electronics sector.

At the end of the programme, participants would complete 2 Modular certificates and be able to apply the knowledge of electronics in the core areas of Microelectronics and Electronics.

- Certificate in Microelectronics
- Certificate in Analogue Electronics and Applications

After completing the 2 Modular Certificates, students can choose to continue to take the Part-Time Diploma in Engineering (Electrical and Electronics).

**BENEFITS TO ITE Graduates**

- Receive a full-time employment with participating companies and acquire relevant work experience and skills valued by the industry.
- You will also receive a sign-on incentive of **\$5,000\*** when you completed the SkillsFuture Work-Study Programme.

*\*For fresh graduates who are Singapore Citizens and within three years of graduation or Operational Ready Date for full-time National Servicemen only.*

**WSP LESSON DAY**

- The commencement date is Oct 2024. The lessons will be conducted on at Republic Polytechnic (3 weekday nights per week).

**ELIGIBILITY FOR CANDIDATES**

Singaporeans and Singapore Permanent Residents who are:

- within three years of graduation from ITE or the Operational Ready Date (ORD) for full-time National Servicemen, or
- within five years of graduation from ITE, and if their employer is a participating company.

**REGISTER INTEREST**



**Introducing the SkillsFuture Work-Study Program (WSP) and Career Transition Programme (SCTP) by Singapore Polytechnic**

**WORK-STUDY PROGRAM (WSP)**

*Work-Study Post-Diploma (Advanced Diploma in Applied Science and Engineering - Microelectronics and Materials) (WSP-NAASE): Elevating Workforce Excellence in the Specialty Chemicals and Microelectronics Industry*



**CAREER TRANSITION PROGRAMME (SCTP)**

*SkillsFuture Career Transition Programme "AI and Cloud Services" supports mid-career individuals in acquiring industry-relevant skills to improve employability and pivot to new sectors or job roles. It is a train-and-place programme that is available on a part-time.*

Discover the unparalleled advantages of the Work-Study Post-Diploma (Advanced Diploma in Applied Science and Engineering - Microelectronics and Materials) (WSP-NAASE), a new SkillsFuture Work-Study Programme designed to cultivate a skilled workforce with a comprehensive foundation in science and engineering. This program places a strong emphasis on the practical application of advanced materials within the dynamic realms of specialty chemicals and microelectronics.

**Engage With Us:**

For participating companies interested in this work-study program, simply submit your participation form by scanning the QR code provided below or on our website.

Website QR code:



WSP Participation Form QR code:



**(SCTP) AI and Cloud Services**

Artificial Intelligence is transforming the industry, instrumental in improving all aspects from design to manufacturing. This program prepares the participants with Information and Communication Technology (ICT) and Computer Engineering skills and competencies in areas such as Computer Networking, Python Programming for Internet of Things, Machine learning, Artificial Intelligence, Huawei Cloud Services and Storage solutions.

Website QR code:





# SUPERCHARGE AI WORKLOADS WITH AMD INSTINCT™ MI300A ACCELERATOR

Deliver new capabilities with the world's first APU accelerator for HPC and AI.

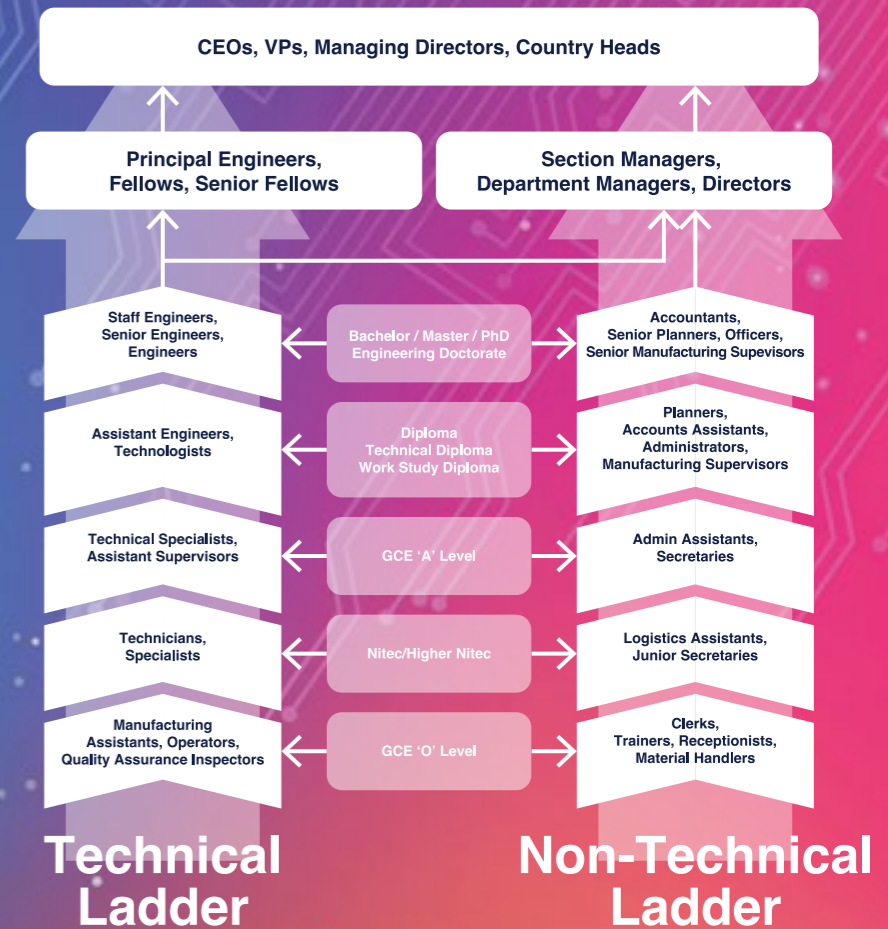
**AMD**  
together we advance\_

Scan for more information

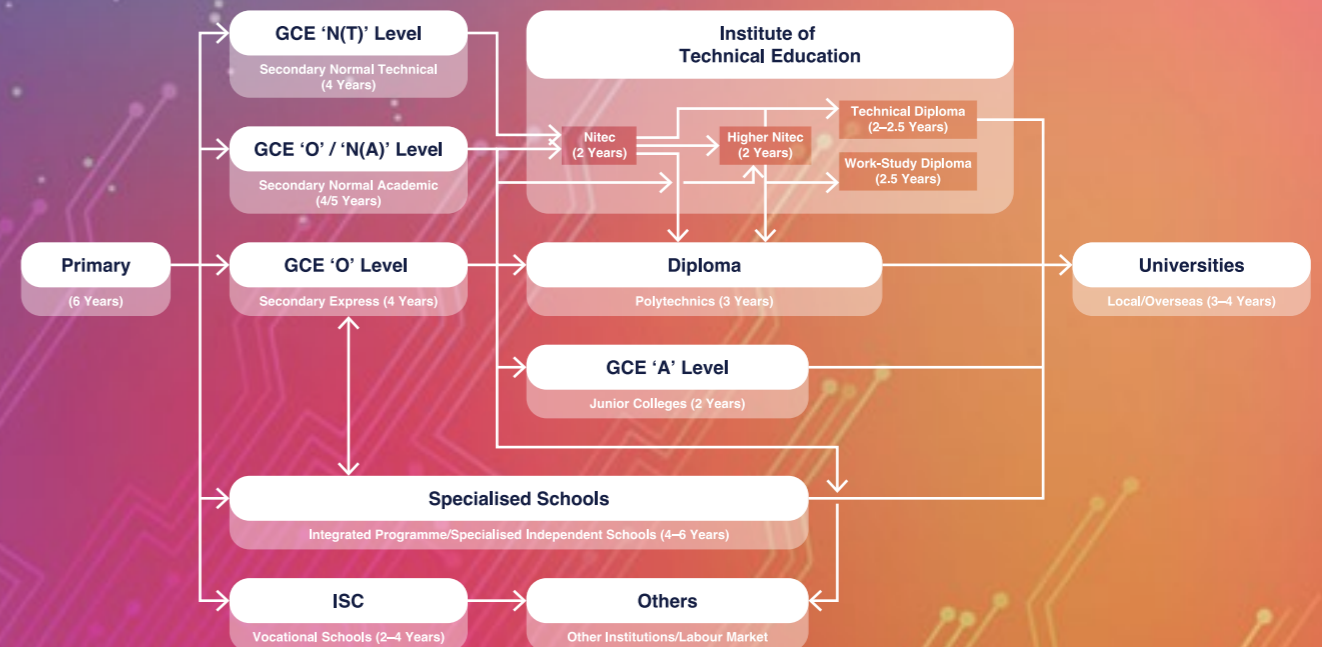


Nurturing Brilliance in the Semiconductor Universe

# CAREER PATHWAYS



## Singapore Education & Training System



# My Experience into the Semiconductor Universe as SAY Ambassadors

“



**Teo Li Shi**

National University of Singapore  
Electrical Engineering / Year 4



As a SAY Ambassador, I had numerous opportunities to delve into the Semiconductor industry via company visits, mentorships and networking events. These platforms allowed me to immerse myself in the industry's latest insights and opportunities, debunking many of my curiosities along the way.

Some memorable experiences would be having SAY ambassadors and mentors from GlobalFoundries bond over board games at The Mind Café, creating a valuable opportunity for personal connections and mentorship. Another would be attending the SSIA 55th Anniversary, where valuable

insights were shared by the industry leaders.

Some key takeaways were networking with the mentoring companies that joined the program, meeting like-minded peers from various Institutes of Higher Learning, sharing industry insights with peers and broadening internship and career opportunities.

I would like to see a platform enabling ambassadors to host outreach events like SAY ambassador recruitment drives or collaborate with mentoring companies to engage potential students.

“

**Samuel Ong Zi Yang**

Singapore Polytechnic  
Electrical and Electronics  
Engineering (EEE) / Year 3



My experience as a SAY Ambassador has allowed me to network with companies and get my name out there and being invited to so many different companies gives me an insight into what it is like working in the semiconductor industry.

The most memorable part is when I met the SAY Ambassador Program mentors in ASTAR. I am currently an intern at IME and thus I often see them and discuss what we have been doing.

Before joining SAY Ambassador, I had no idea what I wanted to do in IME but thanks to the mentors, I have decided to join SiC.

Some key takeaway with this program is that it really allows us to plan for our future. Usually, students would not get the opportunity to learn and network so much. SSIA SAY Ambassador program provides a great resource for youths to get the much-needed exposure.

*Samuel Ong is 2nd gentleman from the right, together with co-workers from IME SiC*

“



**Teo Zhi Sen**

National University of Singapore  
Engineering Science / Year 3

*Teo Zhi Sen is second from left, interacting with industry leaders.*

The Semiconductor Active Youth (SAY) Ambassador programme represents a unique bridge between academic learning and industry exposure. As a facilitator of growth and understanding within the semiconductor sector, the SAY initiative has garnered attention for its innovative approach.

I am Zhi Sen, a SAY Ambassador under mentorship from Micron. The SAY programme is a great platform for those curious about the semiconductor industry. There are abundant internship opportunities, networking events, and company visits that provide an in-depth understanding of the sector.

Among my cherished moments, I recall coffee sessions with my mentor at Micron who provided me perspectives from his different positions in Micron and all the different roles available. I also remembered our engaging Zoom calls brainstorming for the Micron company visit. These experiences not only enhanced my knowledge but also strengthened my connections within the industry and company.

The program underscored the vast opportunities available in the semiconductor field, catering to diverse degrees and positions. Micron took exceptional care of me, aiding in my development and I

strongly encourage other ambassadors to read up more about the companies available and make an informed choice for their future mentoring company according to their interests.

Looking ahead, I hope to see an increase in enthusiastic ambassadors and active participation. I am also looking forward to more events organized by the ambassadors which would enhance the overall experience of the program.

# My Experience into the Semiconductor Universe as SAY Ambassadors



**Barnabas Low**  
Ngee Ann Polytechnic  
Electronic and Computer  
Engineering / Year 3

It has been a bountiful experience. Delving into the semiconductor industry's key players provided valuable insights into the industry's works and expectations.

My mentor's guidance, touching on industry challenges like diversity and inclusion, particularly altered my perspective on the DEI (Diversity, Equity and Inclusion) trend, making me more aware of societal changes that need to start at the root.

I have a deeper understanding of industry scale, trends, and the processes involved, from wafer design

to manufacturing. I have received profound advice from interacting with inspiring individuals, especially my mentor, enhancing my career path and leaving me more driven and confident. In one event, I had the opportunity to converse with Mr Eu Gene Goh, Senior Director at AMD, who offered insightful advice that has been instrumental in enhancing my internship at DSTA this year. The AMD company visit provided a glimpse into the type of work done in Singapore in terms of test and product engineering. Observing the work first-hand helped me ground my understanding of the industry.



**Zhao Yuankun**  
Nanyang Technological University  
Electrical and Electronic  
Engineering / Year 3



The SAY Ambassador Programme provided an all-around nurturing journey for us. All the mentors are very reachable and take the initiatives to reach out to students. The program successfully bridges the information gap between me and the industry. I feel grateful and honored to serve as a SAY Ambassador, representing our peers and expressing our concerns and expectations.

During my attachment with GlobalFoundries, I've visited their patent walls and clean room via VR Visual Reality technology. It was eye-opening for me to see such advanced automated infrastructure in real life as such views usually appear in science fiction

movies. Such experiences change my stereotype view of factory and solidified my commitment in semiconductor.

As a university student who has not entered the workforce, I felt ensconced in a bubble, shielded from the challenges and opportunities in the real industry. The program effectively mitigates the barrier between us and society. I realized the true application behind the sophisticated formulas in the textbook and see how the small chip can be utilized on a titanic machine, or even revolutionize the generation. This provides me confidence and ignites my interest to continue the engineering path.



**Lim Jun Rong**  
Senior Manager  
Talent Acquisition at  
Micron Technology  
and  
SAY Ambassador  
Program Mentor



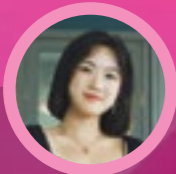
Micron mentors and SAY Ambassadors. Lim Jun Rong is 2nd gentlemen from the left.

SAY (Semiconductor Active Youth) Ambassador Program truly is a differential, well-curated program that blossomed from the close partnership between Institutes of Higher Learning (Polytechnics and Universities) and leading companies in our Semiconductor industry. One of the key activities will be the learning journeys by various participating companies, which is open to all SAY ambassadors and participating companies' mentors. It benefits not just the SAY Ambassadors, but also the mentors from participating companies, forging stronger relationships and networks.

With a big team of 9 mentees and 7 mentors from Micron, in addition to the 1:1 mentee-mentor pairing, we came together for gatherings to network with each other. One of the memorable experiences was when the Micron mentees came together to plan for an event. I could see the passion and the fire in them even though we had that call at 10pm on a Monday night. It amazed me that within such a short time frame, the mentees who used to be strangers to each other, were able to forge such strong friendship and trust, and eventually coming up with an exciting proposal together.

Having the opportunity to be a mentor to two mentees (Zhi Sen and Barnabas) from this SAY program, I am glad to see how they have gained insights, open up to explore and venture into new opportunities. They were able to see how companies work, what is life in the semiconductors about, experience the company culture, hear advices from industry leaders, but more importantly, have fun, forge friendships/networks and gaining clarity on what they want to achieve in life. Along in this 1-year journey with them, I learned as much as they have learned from me.

# My Experience into the Semiconductor Universe as SAY Ambassadors



**Chen Shuying**  
Singapore University of  
Technology and Design  
Electrical Engineering / Year 4



I deeply appreciate the experience of being a SAY Ambassador with SSIA, a journey that has significantly broadened my perspective on the entire industry and immersed me in cutting-edge events beyond my initial expectations. Volunteering at SSIA's Singapore Semiconductor 55th Anniversary Dinner event, in particular, proved to be a pivotal moment, providing profound insights into career planning and industry foresight.

During the event, I had the privilege of engaging in meaningful discussions with industry leaders, learning from their wealth of experiences and gaining a deeper understanding of the

corporate landscape and future plans in Singapore. These conversations were important in keeping me attuned to the current market status and guiding me towards a strategic career path where I could optimize my professional value.

I extend equal gratitude for the support and guidance provided by my mentor Ms. Zhi Xin, and the mentorship company, AMD. Their dedicated efforts in integrating university students into their talent plan, sharing insights into their working culture and environment, played a crucial role in transforming our mindset from that of undergraduates to well-prepared employees.

Summing up the key takeaways from this program, I've learned the importance of remaining humble and passionate in all endeavours. The gained industry foresight has instilled a sense of pride in being an integral part of this transformative experience.

Looking ahead, I envision even greater benefits if there were more opportunities for SAY Ambassadors to interact, fostering conversations and building connections, which would enhance the overall impact and success of the program.

## Ignatius Kok

Product Development  
Engineer at AMD  
and  
SAY Ambassador  
Program Mentor



AMD mentors and SAY ambassadors.  
Ignatius Kok is the 3rd gentleman from the left, right below the "A"!

The SAY Ambassador program allows both Mentors and Mentees to explore the opportunity of a mentorship program. As a mentor, this is a great opportunity for me to learn the ins and outs of mentorship, and with a mentee not within my organization.

Having an in-depth sharing with my mentee about his dreams and aspirations in the future and what he could do to explore the opportunities provided to him. I was also able to share my journey

getting to where I am in my budding career in the semiconductor industry and help give some advice on what he could do if he is interested to explore a career in this industry.

My mentee gets to better understand the depth and breadth of the semiconductor industry that most of his peers might not be able to appreciate without the help of this SAY Ambassador program. My mentee is also able to find a potential

connection for a future career should he be interested to explore an opportunity with my organization.

I hope to see more opportunities/activities for both mentors and mentees to try and strengthen their bond with each other.

Looking forward to the next batch of SAY Ambassadors for 2024, to experience the vibrancy of the Semiconductor universe and share their wonderful experiences with others.

CONTRIBUTED BY SSIA SAY Ambassadors Program

# Empowering Talent at ASM

**T**he semiconductor industry is proud to operate at the intersection of technology and human potential. As a leading global supplier of semiconductor processing equipment, ASM is deeply aware that this connection goes both ways. The cutting-edge innovations it delivers enable faster, smaller, more energy efficient microchips that help to improve people's lives around the world. And the company itself thrives on the power of human ingenuity and creativity, which is why ASM sees its people as the greatest driver of innovation and growth.

## MAKING A DIFFERENCE IN SINGAPORE AND BEYOND

In 2023, ASM marked its 25th anniversary in Singapore, where the company's facility in Woodlands Height has developed into one of its key manufacturing and operations hubs. With a diverse pool of over 1,000 colleagues from 20 nationalities, the Singapore team was proud to welcome 160 new hires and 55 interns in the past year.



Fostering an inclusive work culture with the Women Initiative Network gatherings

ASM is dedicated to fostering a supportive work environment where talented professionals can develop a rewarding long-term career – in Singapore and at any of the 15 countries where ASM has operations. This year, the company was honored to receive two HR Asia awards, for Best Companies to Work for in Asia and Most Caring Company, as independent validation of its commitment to developing talent.



Promoting employees' wellbeing through regular sports contests

## EMPOWERING CHANGE AROUND THE WORLD

For more than half a century, ASM has been at the cutting edge of semiconductor development. With key technologies like ALD and epitaxy, its innovations are driving the digital transformation, playing a crucial role in trends such as 5G, cloud computing, biotechnology, autonomous driving, next-gen medical devices, and AI.

To maintain its momentum at the forefront of the industry, ASM actively invests in its people and their ambitions. At ASM each individual sees the impact they have – on their career, the future of the company, the industry, and society. With targeted development programs, a highly collaborative work ethic, and a culture that encourages people to be their best, ASM is committed to making everyone feel supported, valued, and

included, inspiring its employees to develop impactful ideas that shape the world of tomorrow.



Developing talent through employee training sessions



# The Dream of Edge AI



**I**n a world once envisioned with flying cars and robotic butlers, we may not have arrived there yet, but artificial intelligence (AI) has found its place in our lives. From voice-activated assistants like Alexa to personalized recommendations on platforms like Netflix, AI is omnipresent. But there's a hitch – AI's current prowess is mostly limited to massive, energy-guzzling systems, leaving smaller devices struggling to keep up.

The allure of AI lies in its ability to enable machines to perceive and decide upon their surroundings much like humans. However, this promise has largely favored cloud servers that demand significant power, size, and costs. This brings us to an intriguing question: What if small machines could also "see" and "hear"? While it may seem far-fetched for a doorbell camera to rival autonomous vehicles, there's potential in simpler AI applications, including voice and image recognition.

Imagine doorbell cameras that distinguish between mundane events and

actual human presence, reducing false alarms and enhancing security or picture cameras that activate based on specific events, like spotting wildlife or detecting noises. Moreover, envision using extensive vocabularies to interact with various devices.

These examples are just the tip of the iceberg. The concept of empowering small machines to independently understand and solve problems, a task that previously required human intervention, is powerful.

So, why haven't we achieved this yet? The challenge is computational intensity. Traditional AI models, like convolutional neural networks (CNNs), demand massive computations. Smaller devices face a trade-off – opt for low-power but slow solutions or costly, power-hungry processors.

Fortunately, a solution is emerging. Embedded AI solutions designed to minimize energy consumption during CNN computations are on the horizon. These innovations aim to eliminate the

energy barrier to machine vision, allowing small devices to "see" and "hear" efficiently.

We're on the brink of a revolution for small devices. The dream of battery-powered machine vision is within reach, promising enhanced capabilities and efficiency like Analog Devices MAX78000, an energy-efficient microcontroller for AI inferences. Welcome to an era where small machines can truly "see" and "hear," setting the stage for a future brimming with possibilities.

### CONTRIBUTED BY



**Kris Ardis**  
Managing Director





# Micron Expands STEM Education Programs with Its First Chip Camp in Singapore



educational resources to help ignite their curiosity in the STEM, ultimately shaping a transformative future. Chip Camp is one of the Micron Foundation's flagship K-12 STEM outreach programs, built on partnerships with community organizations, colleges and universities. Their signature programs exist to identify new ways to educate, train and inspire those in underrepresented and rural populations to pursue a future career in STEM fields.

"Micron is happy to collaborate with MENDAKI and Science Centre Singapore to organize the first-ever Chip Camp in Singapore creating inspiring and equitable environments for STEM education," said Mr. Chen Kok Sing, corporate vice president and Singapore country manager, Micron Technology and Board Member of Micron Foundation. "Chip Camps help nurture local young talent and stimulate their interest in STEM."

**M**icron Technology and the Micron Foundation collaborated with Yayasan MENDAKI and Science Centre Singapore to host the inaugural Micron Chip Camp in Singapore from November 6 to 8, 2023. The three-day program provided hands-on STEM (Science, Technology, Engineering and Math) learning opportunities related to semiconductor manufacturing and engineering for 55 lower secondary students.

The Micron Foundation is committed to promoting STEM education initiatives to help nurture students' critical thinking, STEM identity, and problem-solving skills. As part of a global program started over 20 years ago at the corporate headquarters in Boise, Idaho, the program now runs in Japan, China and Taiwan as well. Micron offers children from different backgrounds access to

The first two days of the Camp were held in Science Centre Singapore, where the students participated in activities and experiments designed to help them explore the fundamentals of digital electronics and the methods used for mass-manufacturing miniaturized electronic chips.



On the final day, the students had the opportunity to tour the Micron Singapore facility to see how memory chips were made in a real factory setting along with expert commentary on the processes in the semiconductor industry from the Micron team.



Mr. Chen Kok Sing, Micron's corporate vice president and Singapore country manager gave an inspiring speech of encouragement to the students.



Muhammad Noor Ali Bin Md Idros (center) received his certificate of participation after he completed a three-day program at the Micron Chip Camp.

Mdm Zuraidah Abdullah, Chief Executive Officer of Yayasan MENDAKI, said MENDAKI is delighted to co-organize this Chip Camp in Singapore and added, "Micron is the first corporate partner to be involved in almost all of MENDAKI's signature programs and we look forward to widening and strengthening our students' pathways in STEM through scholarships, internships, mentoring, learning journeys and corporate volunteering programs. The Chip Camp would be a fun and meaningful learning experience for the students."

Associate Professor Lim Tit Meng, Chief Executive of Science Centre Board said, "This is another meaningful initiative that

we rolled out in collaboration with Micron Technology to host the first-ever Chip Camp in Singapore to promote interest, learning and creativity in science and technology. This program has been specially customized, co-designed with Micron to offer students from different backgrounds with a unique view on the STEM applications in the semiconductor industry."

Muhammad Noor Ali Bin Md Idros from Raffles Institution, one of the participants, said he was most excited about the clean room tour at Micron. It has been an eye-opening experience to see how such tiny memory chips can have a significant impact on their daily lives.



Scan to watch the highlights of the Micron Chip Camp

CONTRIBUTED BY



## Discover the HOYA Electronics Experience: Innovation, Growth, and Well-Being

In the ever-evolving technological innovation landscape, the semiconductor industry stands tall as a crucial pillar, driving advancements that shape our future. HOYA Electronics is invested in nurturing a workforce that is empowered, valued, and poised for growth.

At the forefront of semiconductor technology, HOYA Electronics specializes in developing optical and extreme ultraviolet (EUV) photomask blanks. These components are pivotal in manufacturing the latest-generation chips, which are integral to artificial intelligence, high-performance computing, and 5G technologies. Our expertise extends to producing photomask blanks for a variety of chips, including those used in memory, logic, and power devices, underscoring our versatile role in shaping digital landscapes.

### LIFE AT HOYA ELECTRONICS

HOYA Electronics is not just about groundbreaking technology; it's about

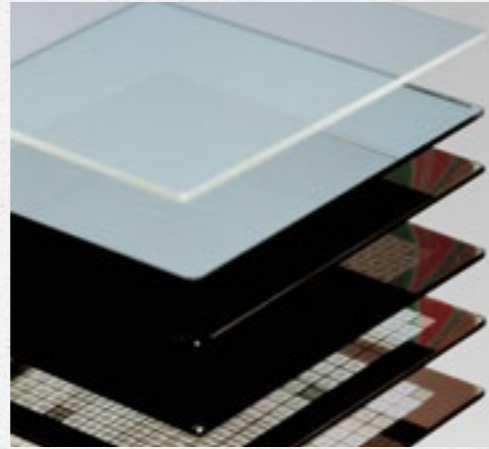
creating a better future for people and the planet. This vision is embedded in our commitment to innovation. The company's ethos—harmonizing technological progress with nature—guides its operations. HOYA Electronics prioritizes environmental protection, safety, and human rights, creating a workplace culture that celebrates diversity, inclusion, and employee well-being.

### EMPOWERING EMPLOYEES FOR A BETTER TOMORROW

HOYA Electronics offers an empowering, inclusive workplace that nurtures talent, fosters personal growth, and supports work-life balance. Employees are encouraged to unlock their potential through skill-building and career advancement opportunities. Recognizing that employee success contributes

to corporate achievements, HOYA Electronics provides fair and competitive rewards, celebrating individual contributions.

With over 1,000 talented team members across ten global locations, HOYA Electronics is a global leader in mask blanks for semiconductor manufacturing. Our company's diverse and growing team exemplifies its commitment to nurturing brilliance in the semiconductor industry.



#WeAreHOYAElectronics  
Empowered to make a difference

CONTRIBUTED BY

**HOYA**

HOYA Electronics

If you are looking for a workplace that empowers you to innovate, develop, and grow while prioritizing your well-being, you have come to the right place. Drop us an email with your resume at [lsi.sgtalent@hoya.com](mailto:lsi.sgtalent@hoya.com) today!



## Creating a Culture of Opportunity: How Infineon Attract Emerging Talents

Infineon is dedicated in developing emerging talents throughout recent years, nurturing students and fresh graduates. As the semiconductor industry is rapidly growing, the demand for skilled talents has increased as well. Infineon has committed itself in ensuring that Singapore remains attractive in our strategic sector by attracting and developing young talent to address such challenges.

Every year, Infineon offers an average of 150 internship positions. The internship programme not just offers learning experience, it also serves as a means of talent spotting for potential future graduate employment which forms part of our global 20% emerging talent hiring in Infineon.

With that, Infineon is proud to welcome more than 51 former interns whom boomeranged to embark on their professional career with us since 2021. This is a testament of people and learning culture that we strongly advocate and continuously uphold.

Infineon also plays an active role in employer branding and engagement.

The Emerging Talent team organises regular site visits (Open House Day, Innovation Gallery etc.) and has frequent participation in campus fairs. Students from local institutions are invited to come experience Infineon's work environment, network with hiring managers and existing young talents, and explore new opportunities with us.



CONTRIBUTED BY

**infineon**

[www.infineon.com/singapore-emergingtalents](http://www.infineon.com/singapore-emergingtalents)

# Future Trends in Optoelectronics

**T**here are various new trends on the horizon for 2024 which are expected to revolutionize the world of visible and invisible light, as well as related sensor applications. They are the fruit of many years of creative laboratory work: Developments such as miniaturization and digitalization reach new dimensions. And photonics opens up new fields of application, enabling new technological breakthroughs, such as in the fields of medical engineering and automotive. Many new innovative developments will gradually find their way into our daily lives. Many of them will be implemented in cars or smartphones, and also for manufacturing and industry.

## SMALL, SMALLER AND EVEN SMALLER...

Miniaturization remains a key trend in photonics. Size is indeed a decisive factor in today's world. This especially applies to the components installed in consumer devices such as smartphones, laptops, or smart wearables. And: Saving precious installation space is also of prime importance in the automotive industry. Therefore, light sources and sensors, as well as integrated optical systems, must become smaller and smaller. AR/VR glasses are a prime example: They open up highly complex, three-dimensional worlds to their users. Just a few years ago, the technology required to manufacture these futuristic glasses still filled a huge cardboard box. Today, it is small enough to fit into slightly oversized ski goggles! The future goal is to integrate AR/VR into the everyday glasses of millions of users. With its extra-small

Mira050 image sensor, ams OSRAM has already contributed significantly to the miniaturization of smart glasses. In addition, the company has launched customized, LED- or laser-based projector solutions, as well as sensor solutions for eye tracking and gesture recognition.

To adapt to the complex anatomy of the human body, size also plays a major role in medical engineering. Furthermore, in today's hospital buildings, imaging systems such as CT scanners must even fit into confined spaces. Dimensions are also becoming smaller and smaller in the fields of dentistry and endoscopy. Thanks to the NanEye image sensor from ams OSRAM, state-of-the-art endoscopy probes are already equipped with extra-small heads, enabling more gentle patient care. And the day will come when doctors will even want to channel sensor capsules through the human bloodstream!

## CARS NOW COMMUNICATE INTELLIGENTLY TO THEIR SURROUNDINGS

Headlights increase road safety. In addition to driver and passenger safety, this safety innovation now also focuses on the vehicle's environment: The car actively perceives its environment and adjust to the situation. Through adaptive beam and light projections, new ams OSRAM technology enables communication with pedestrians, cyclists, and other road users. For over years, ams OSRAM has been developing adaptive headlight technology. In 2013, the company achieved 1,024 pixels implemented on an LED chip for the very first time. 2023 ams OSRAM launched intelligent, multi-pixel LED named EVIYOS 2.0, a product for automobile front lights featuring a technology feat of 25,600 pixels. And our "light from nowhere" ALIYOS technology will bring

design freedom and technology advances to other exterior lighting applications.

## DURING FITNESS TRAINING AND AT THE DOCTOR

We see that the future will also be determined by new, extended fields of application for which photonics. Health is a key field here: Photonics plays a major role in keeping fit, enabling you to manage your health more freely as well as in the diagnosis of health conditions. Cutting-edge technology from ams OSRAM has already tracked fitness data for quite some time now. Thanks to digitalization and miniaturization, vital sign monitoring devices today are becoming smaller and smaller, more intelligent, and more precise than ever before. This applies to both pulse measurement with a smartwatch/smart ring and clinical devices as well

as other possible applications such as detecting health data from your earbuds.

## COUNTING PHOTONS

In the field of medical engineering, imaging systems are the state of the art in diagnostics. Physicians are striving to reduce their patients' exposure to radiation, e.g. during CT scans and X-ray. A promising approach is to collect additional information during measurement. Counting individual photons with sensors from ams OSRAM enables higher image resolution while at the same time improving the quality of the data captured. This will be a technology jump akin to the difference to that between black-and-white TV and color TV. And last but not least, the radiation dose can be reduced by 40 to 80 percent depending on application!

## PHOTONICS IS THE KEY TO A BETTER FUTURE

Future-oriented technologies and applications are as versatile as light and sensors. As a matter of fact, the significance of photonics in future-oriented fields is increasing. Optical sensor technology in particular is becoming more and more a part of our everyday lives. Therefore, the various stages of ams OSRAM's development activities focus on future-oriented applications, especially in the strategic core areas of automotive, industry, and medical engineering. For selected consumer electronic segments, our engineers develop more and more sophisticated solutions that push the boundaries of what is physically feasible. Because the following motto applies to all areas: smaller and smarter, as well as more integrated, more digital, and more energy-efficient.



CONTRIBUTED BY



# Greener, Faster, Better SiC Wafers



SmartSiC™ uses 90% less single crystal while improving MOSFETs & Diodes performance

To learn more scan the QR-code:



## Bracing towards Congruency for a Diverse Workforce

*SSMC's Commitment to Continuous Growth, Empowerment & Community Engagement*



At the SkillsFuture Festival 2023, Minister for Education, Mr. Chan Chun Sing outlined a vision for accelerating SkillsFuture strategies. He emphasized the importance of agility, inclusivity and empowerment, setting the stage for companies like SSMC to continue taking bold steps, staying focused in engaging and developing our diverse workforce.

SSMC, with a global workforce representing over 15 nationalities, recognizes the pressing need for

### SUPPORTING CONTINUOUS DEVELOPMENT & GROWTH

Being a joint venture company, SSMC workforce benefits from the "best of both worlds" from both NXP and TSMC, our shareholders, providing a benchmark learning experience in the technical learnings and knowledge-sharing. The company regularly reviews its Competency Development Framework, ensuring it encompasses foundational skills and adapts to the meet the shifting demands of latest technological advances, such as automation, industry 4.0 and digital transformation.

### EMPOWERING & BUILDING A FUTURE READY WORKFORCE

To address the challenges employees face in upgrading themselves, SSMC runs an annual Life-Long-Learning Education Assistance Program (LEAP), sponsoring cohorts for further education. Leadership, managerial, and technical competencies are continually invested in to keep the workforce agile and prepared for current challenges and the future.

As the company forges ahead, SSMC remains dedicated to creating a high-



upskilling and reskilling in a competitive talent landscape. As the workforce dynamics evolve—with younger talents seeking rapid growth, mid-careerists contemplating career shifts and experienced employees extending their careers —SSMC is committed to fostering an environment of continuous learning and development to broaden the reach, to stay agile, empowering to all to excel and grow.

### ENGAGING WITH OUR PARTNERS & COMMUNITY

SSMC's engagement with the community extends to partnership with educational institutions, trade associations. We partner with IHLs (Institute of Higher Learnings) through the SgIS Scholarship program. SSMC also provides opportunities of internships and devotes to re-skill mid-careerists through the Career Conversion Program in partnership with SSIA.

performing and engaged workforce. The commitment to lifelong learning is evident, and we look forward to the continued journey, knowing that the best is yet to come.

CONTRIBUTED BY



# ASMPT - Enabling The Digital World Through Our People

*The semiconductor and electronics manufacturing industry plays a key role in helping propel the world into a more connected, digitalised future. The semiconductor universe is a playground of possibilities: from the intricacies of chip design, the precision of manufacturing processes, to the massive potential of emerging technologies such as generative AI.*

At ASMPT, we understand this. As a leading global provider of hardware and software solutions for the manufacture of semiconductors and electronics. Any device containing electronics has probably been developed or built using our solutions in some way - from computers, to cars, to mobiles and wearables, to factories and much more. We take pride in being a key architect in 'enabling the digital world', and we offer a place for individuals to unleash their full potential in service of this vision.



The semiconductor industry is a trailblazer and we know that our success is intricately woven into the talents and aspirations of our people. We provide an environment that encourages continuous learning and growth, from collaborative projects that push the boundaries of what's possible, to programs to help guide the next generation of leaders. Our commitment to research and development is also a testament to our belief in staying at the forefront of the myriad technological advancements in this sector.

In ASMPT, we have our own ASMPT Academy which offers a comprehensive portfolio of courses designed for specific target groups and modalities - face-to-face

training, e-learning, virtual reality, or blended training - to help our people extend and keep their technical knowledge up-to-date. Our experienced engineers who design Academy curricula also help incorporate state-of-the-art research and advanced technologies directly into end applications.

ASMPT helps open doors for enthusiastic individuals to be part of contributing to something greater than themselves, united by a shared passion for excellence. The demand for semiconductor solutions will continue to increase, creating a future where every device - from the tiniest wearables to smart cities - becomes a testament to ingenuity.

If you are contemplating a journey into the semiconductor universe, we would love for you to consider ASMPT. The future belongs to those who dare to dream, and ASMPT is helping to craft that future, one innovation at a time. Come run this race with us, together!

Kindly visit our website at [www.asmpt.com](http://www.asmpt.com). For any inquiries, please contact us via email at [sg.careers@asmpt.com](mailto:sg.careers@asmpt.com)

### CONTRIBUTED BY



**John Lim**  
Head, ASMPT Singapore



**Low Wei Hsien**  
Deputy Head, ASMPT Singapore



# VIS's Holistic Talent Development Journey

In its unwavering commitment to nurturing talents and brilliance, Vanguard International Semiconductor (VIS) has embarked on a transformative journey of talent development, through three pivotal initiatives: the Learning Festival, the Vanguard Management Development Programme (VMDP) and VIS Technical Series.

### Unified Growth and Excellence: VIS's Learning Festival 2023 and Technical Series

In April 2023, VIS introduced the month-long Annual Learning Festival, creating a culture of continuous learning and professional development. This dynamic initiative engaged employees, fostering enthusiasm and reinforcing VIS's corporate culture. Running concurrently, the VIS Technical Series ensures ongoing advancement in industry standards for our engineering professionals. Led by industry experts, this program provides a systematic approach to document knowledge and actively contributes to in-house knowledge-sharing sessions. The seamless collaboration between the Learning Festival and Technical Series fortifies our workforce, strategically positioning us at the forefront of innovation and industry excellence within the dynamic semiconductor landscape.

### VIS Leadership Development: Nurturing Excellence at Every Level

VIS's Leadership Development Programme exemplify our strategic commitment to fostering excellence. The VMDP orchestrated from our headquarters in Taiwan, tailors its approach through three segments, addressing foundational to strategic skills across diverse managerial levels.



This comprehensive structure reflects VIS's dedication to nurturing leadership proficiency across the organization. Complementing this, the VIS Lead Programme, inaugurated in September 2022, sharpens leaders' focus and skills for impactful results in navigating today's complex world. Together, these initiatives showcase VIS's relentless commitment to cultivating talent and brilliance across diverse managerial spectrums.

### A Synergistic Approach to Talent Development

VIS's talent development efforts converge in a synergistic approach that encapsulates learning, managerial

excellence, and visionary leadership. As VIS continues to invest in its greatest asset - its people, the ripple effect ensures adaptability and flourishing workforce capable of driving meaningful impact and innovation, propelling VIS into a future of sustained success.

### CONTRIBUTED BY



# Bloom into the future



The world that emerges in a few short years may transcend the boundaries of our imagination. We provide sustained support for an unpredictable future in our capacity as a semiconductor production equipment manufacturer. Why? Because we are confident that awe-inspiring technological innovation nurtures humanity's dreams in the present so they may bloom into the future.



Tokyo Electron celebrated its 60th anniversary on November 11, 2023

## Join UMC to Unleash The Power of Technology for a Better World



global headquarters serve as the command center for technological advancements. In addition, UMC maintains strategically positioned offices in the United States, Europe, China, Japan, Korea, and Singapore, fostering a global network with a localized touch. UMC's worldwide team of 20,000 professionals contributes to the global footprint while ensuring a nuanced approach to innovation.

UMC (NYSE: UMC, TWSE: 2303) is a leading global semiconductor foundry company. The company provides high quality IC fabrication services, focusing on logic and various specialty technologies to serve all major sectors of the electronics industry. UMC's comprehensive IC processing technologies and manufacturing solutions include Logic/Mixed-Signal, embedded High-Voltage, embedded Non-Volatile Memory, RFSOI and BCD etc. UMC has total 12 fabs in production with combined capacity over 880,000 wafers per month (8-inch



equivalent), and all of them are certified with IATF 16949 automotive quality standard.

Situated in Hsinchu, Taiwan, UMC's

UMC's commitment to innovation is deeply embedded in every role within the organization. From engineers refining intricate designs to strategic leaders shaping the global presence of UMC, each professional plays a pivotal role in our collective success.

At UMC, we recognize that our most valuable asset is our talent. Accordingly, we invest substantially in professional development, offering a diverse array of learning opportunities, mentorship programs, and a transparent career advancement pathway. Your journey at UMC is a testament to our commitment to your ongoing success. If you aspire to be an integral part of a distinguished company at the forefront of semiconductor innovation, explore the opportunities that await you at UMC. Join us in pioneering the future of semiconductors and elevate your career in an industry-leading global entity.



For more information about career at UMC, please check: <https://careersumc.com/en/jobsearch.php>

CONTRIBUTED BY



# PIONEERING SILICON PHOTONICS FAB FOR A CONNECTED WORLD

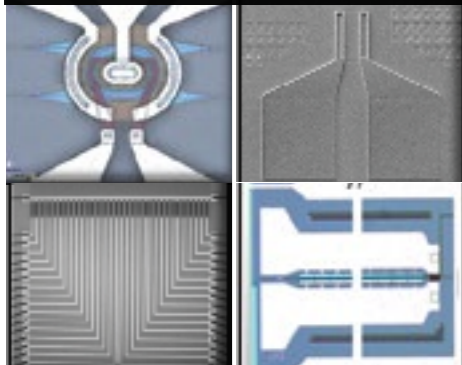
Advanced Micro Foundry (AMF) is the preferred Silicon Photonics Foundry, bringing innovation in cloud connectivity and AI-ML computing. The company supports seamless integration of all optical functions on Silicon Wafers, enabling ultra-high bandwidth data transmission in cost-efficient CMOS ecosystem. AMF's technology is not just revolutionary for communication and computing, it is set to transform autonomous navigation (LiDAR) and optical sensing (Bio/Wearables) in the near future. AMF epitomizes the **SG Success Story** of a home-grown technology firm that now connects the globe, evolving from an R&D fab into a thriving commercial company of over 220 employees.

**VOLUME MANUFACTURER**

**MPW PROTOTYPING**

**TESTING**

## PDK 4.0: More than 100 Silicon Photonics devices



## AMF's Unique Edge

AMF offers wafer manufacturing services on 5 material platforms to suit a wide application spectrum. On each platform, AMF provides customers with access to its advanced device libraries (Process development Kits or PDKs). These kits not only drastically reduce customers time to market by few years, but also propel the entire industry forward.

With more than 120 customer products developed and thousands of wafers delivered, AMF is the foundry partner of choice for industry leading corporations.

## Join our Silicon Photonics Journey

AMF's CEO, Mr. Jagadish C.V, shared his vision for the company: "Our team is bound together by a shared passion for photonics. We are driven by the opportunity to shape the future of optics, much like the success stories seen in the semiconductor industry over the past decades. Our vision is to make AMF the de-facto Silicon Photonics fab, and we recognize that our strength comes from our people - our dedicated staff, valued customers, and supportive shareholders. Join us on our transformative journey, where your contributions will help drive innovation and excellence in the photonics field."



# Spark Curiosity and a Lifelong Love of Learning

## Nurturing Brilliance at Silicon Labs and Beyond

Semiconductor innovation is at the heart of products and services that are transforming industries, growing economies, and improving lives. Of course, that innovation starts with people, and so for more than two decades, Silicon Labs has nurtured a collaborative team around the globe, coming together to create a smarter, more connected world. We are committed to fostering a diverse and inclusive workplace that attracts and retains exceptional talent.

children stick with it, and their enthusiasm grows and so does the talent pipeline for the semiconductor industry.

We engage with universities, sponsor professors and research, and offer internships for undergraduates as well as graduate students. Once talented engineers join our company, we invest in ongoing training. In 2022, we launched a new internal training program, Silabs University, with more than 425 live and recorded sessions.

By supporting research and development initiatives, we empower scientists and engineers to tackle some of the most interesting challenges the industry faces. Our own engineers are continuously developing new products, improving manufacturing processes, and advancing the efficiency of low-power electronic devices. Every year, hundreds of Silicon Labs employees are awarded patents for their work.



We recognize the need to invest early in Science, Technology, Engineering, and Math (STEM) education for kids, from primary school all the way through university. We support STEM education efforts in the communities in which we live and work. When introduced to the subjects early and with creativity,



We host a webinar series for our employees, inviting scholars to share cutting-edge discoveries and engineering methods. We also hold a global Technical Symposium for our engineers to share their latest work and learn from each other.



To nurture brilliance in the semiconductor industry, invest early in talent development, and foster not only interest but enthusiasm. Support ongoing education, spark curiosity, and reward ingenuity. Set ambitious goals for technology leadership and take pride in advancing technology that benefits the world.



CONTRIBUTED BY



# The Impact of Emerging Technologies, Particularly AI, on the Recruitment Landscape

In the shifting landscape of the modern world, emerging technologies have become integral to our daily lives, redefining how we live and work.

From artificial intelligence and blockchain to quantum computing, these advancements are not mere features but transformative forces, bringing profound changes to how companies discover talent and how job seekers navigate their career paths.

Several leading companies have successfully leveraged AI to enhance their recruitment processes.

IBM has been a trailblazer in adopting AI for talent acquisition. Their AI platform, Watson, is instrumental in candidate screening, skill assessment, and predicting potential success based on historical data.

Google harnesses machine learning and AI algorithms to elevate its recruitment processes. AI is deployed for resume screening, identifying suitable candidates, and streamlining the initial stages of the hiring funnel.

Amazon has integrated AI into its recruitment processes in response to a high volume of applications. From resume screening and candidate matching to interview scheduling, AI plays a crucial role in managing the complexity of their hiring endeavors.

Microsoft utilizes AI technologies, including natural language processing, for talent acquisition. AI aids in assessing candidates' technical skills, evaluating cultural fit, and predicting potential success in specific roles.

Unilever employs AI-driven video interviews to evaluate candidates. This technology enables a nuanced assessment of candidates' responses, communication skills, and other relevant attributes.

AI algorithms, with their remarkable ability to process vast datasets, have revolutionized the initial stages of talent acquisition. This goes beyond saving time for recruiters; it ensures a precise match of candidates with the specific skills demanded by respective positions. Yet, AI doesn't stop at candidate selection; it extends its influence

into more informed decision-making. Predicting a candidate's potential success based on historical data equips employers with valuable insights, reducing the chances of mismatches and aligning talent strategically with organizational goals.

On the flip side, job seekers are in a dynamic landscape where skill requirements are constantly in flux. The semiconductor industry, in particular, demands adaptability. Professionals must be flexible, acquiring new skills and keeping up with industry trends. This challenging yet dynamic environment presents opportunities for continuous learning and professional growth. With a surge in demand for skilled professionals in semiconductor technology, the competition among job seekers has intensified. The use of advanced technologies in the recruitment process means candidates are showcasing not only core competencies but also their ability to adapt to and embrace technological advancements. Job seekers are navigating a tech-driven job search process where AI introduces automated screening and assessments. Understanding and leveraging these technolo-



gies become essential for those aiming to stand out in a competitive market.

While AI is undeniably impacting the recruitment landscape, it's crucial to recognize that for certain positions, such as C-suite level roles or those deemed critical to the business, there's a limit to the reliance one can place on AI technologies. These high-stakes positions demand a nuanced approach to talent identification, attraction, and a 'wooing dance' with the candidate. Factors like alignment of values and understand-

ing the aspirations of a human are integral in such scenarios – aspects that a bot can and should never replace. The human touch remains irreplaceable in these strategic and relationship-driven roles.

In essence, integrating advanced technologies in the recruitment process is a game-changer. It goes beyond optimizing operational efficiency; it ensures a more precise and strategic talent alignment. What makes it work is the delicate dance between technological innovation and human

insight. As the tech-driven revolution continues, it's not just changing the game; it's enhancing the experience for both employers and candidates, reshaping the future of talent acquisition in ways we're only beginning to fathom. The adoption of AI in hiring is a dynamic field, with continuous developments shaping its trajectory.

## CONTRIBUTED BY



**Michelle Lee**  
Head of Semiconductor Practice  
– Asia Pacific & the US





# Igniting the Passion for R&D in Microelectronics



IME Microelectronics R&D June Holiday Camp 2023



IME mentors interacting with student ambassadors at Semiconductor Active Youth company visit to AMD

One of the hands-on experiments during IME Microelectronics R&D June Holiday Camp 2023

## KEEPING IT A PART OF IME'S MISSION:

At IME, developing talent and inspiring youths is part of our mission.

We offer industrial attachments to tertiary students from Junior College (JC), polytechnic, Institute of Technical Education (ITE) and university. These students get to experience working in a vibrant, world-class R&D environment, where new technologies are developed and translated into practical applications that help to create growth for Singapore and the industry, and improve the lives of those who use them. The highlight of most students' time with us is spending time in the cleanrooms with their mentors, where they get to operate state-of-the-art equipment. In 2023, we significantly stepped up our engagement of the tertiary institutions. As a result, we have helped to train over 100 students through our industrial attachment programs.

To ignite the curious minds, IME, in consultation with the Singapore Science Centre, had launched an annual 'June Holiday Microelectronics Camp' since 2022 for JC and polytechnic students. Students spend about a week at IME where they perform structured experiments in areas ranging from MEMS, photonics, packaging and IC design. Coupled with intensive lectures from IME's scientists and engineers, the students are eventually tasked to give presentations to convey their understanding about microelectronics. IME also partners SSIA in its annual Electronics Industry Day and roadshows to secondary schools that offer STEM Applied Learning Programmes. As a result, IME has reached out to over 1000 students in 2023.

## About the Authors:

**Karen and Li Ting** are currently spearheading the Talent & Youth Initiative at the IME, helping to nurture and champion scientific enquiry in Singapore's youth

## CONTRIBUTED BY

**Dr Karen Chong,**  
Deputy Executive Director

**Ng Li Ting,**  
Manager



Our insatiable appetite for all things electronic, from our smart phones to our smart appliances at home, to "green" products such as electric vehicles, has propelled the demand for microelectronics. Without innovations in design and manufacturing, the technologies that we count on everyday would not be possible.

As Singapore's only research institute dedicated to microelectronics research, IME is investing to ignite and nurture the passion for R&D in microelectronics. We share our strategies next on how we've helped to inspire students and train the next generation of semiconductor leaders for Singapore.

We invite the industry to join us in shaping the future of microelectronics.

Interested companies and schools can reach us at : [talent\\_development@ime.a-star.edu.sg](mailto:talent_development@ime.a-star.edu.sg)



Our product and technology offerings harness the latest breakthroughs in AI, melding deep industrial expertise with state-of-the-art sensing technology. We deliver adaptable AI applications tailored for advanced manufacturing sectors like semiconductors, specializing in defect detection and management, equipment health diagnostics, and process optimization.

Our solutions are designed to strike a harmonious balance between **cost-efficiency, quality, and productivity.**

Legacy Operation	VS	Innowave Solution Adaptive AI
Errors >15Min	<	Quality >
4-6 Specialist	<	Productivity >
10%	<	Cost >
1 to 1	<	Data preservation >
	<	Scaling >
		Errors Free
		<1Min
		0-2 Specialist
		100%
		1 to N Real time

( Balanced and Fully Scalable )



## Silicon Box – Cultivating the Excellence that will Shape the Technology Landscape of Tomorrow

With the fast evolution of technology, the semiconductor industry is the critical backbone, powering the innovations that shape our future. Despite its significant and intertwined impact on supply chains, the semiconductor ecosystem itself is often a mystery, sometimes overlooked, a universe of its own. As this universe emerges to the forefront of cutting-edge technology and global agenda, it has become apparent that excellence is the result of a nurturing environment that fosters creativity, collaboration, continuous learning and much more.



ence and facilitate the exchange of ideas, to foster innovative solutions for the challenges of tomorrow.

### SUSTAINABILITY

As the demand for technology continues to grow, it is imperative to develop environmentally conscious systems and solutions. In this context, nurturing excellence means advancing technology responsibly, with an awareness of the human impact and a commitment to ethical practices.

### EDUCATION AND CONTINUOUS LEARNING

At the core of our semiconductor ecosystem are the brilliant minds behind the design, materials and manufacturing of these intricate components that power our world. Our environment and industry leaders form the bedrock, providing aspirational engineers with a solid foundation. Continuous learning is paramount, given the rapid evolution of technology. We encourage collaboration with academia to enrich the learning experi-

### DIVERSITY AND INCLUSION

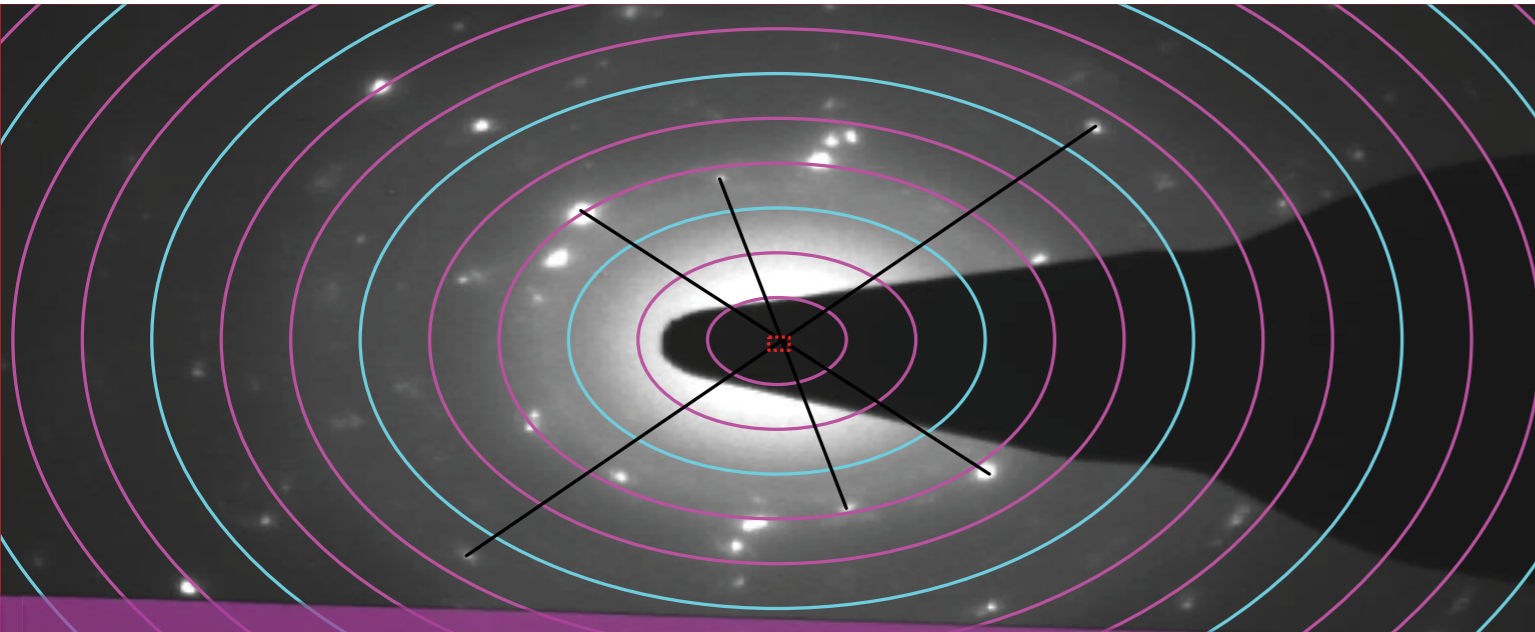
A thriving semiconductor ecosystem embraces diversity and inclusion as essential components. We champion diversity, recognizing the value of varied perspectives and backgrounds. An inclusive environment empowers every individual to contribute their unique talents, fostering a culture of innovation and creativity. A diverse workforce not only reflects the global, consumer-oriented nature of our industry but also ensures a broad spectrum of ideas that can drive constant transformation.



Nurturing excellence in the semiconductor universe is a multifaceted endeavour that encompasses education, research, collaboration, continuous learning, diversity, and sustainability. By investing in these areas, we not only propel the semiconductor industry forward but also contribute to a future where technology serves as a force for good. As we celebrate the achievements of today, Silicon Box will remain committed to cultivate the excellence, that will shape the technology landscape of tomorrow.



CONTRIBUTED BY



At WinTech Nano, we help customers identify failures, and root causes and make the most of the data that can create innovations that lead to future success.

Find out more:



[www.wintech-nano.com](http://www.wintech-nano.com)  
[sales@wintech-nano.com](mailto:sales@wintech-nano.com)

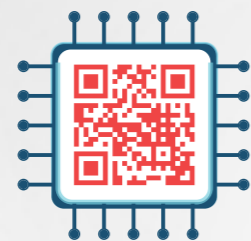


## CHIPS And Science Act

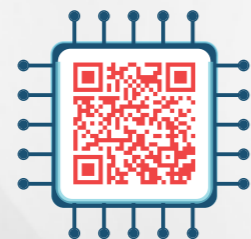
**G**PEC recorded CHIPS Act Webinar #4 following the release of the Notice of Funding Opportunities (NOFO)

Please check out the GPEC CHIPS Act Resource Page for the video link, presentation decks and blog recap and subscribe to this page to receive the latest updates.

for projects for the construction, expansion, or modernization of commercial facilities for semiconductor materials and manufacturing equipment for which the capital investment falls below \$300 million.



[www.gpec.org/chips-act](http://www.gpec.org/chips-act)



Video : CHIPS Act Webinar



The NOFO also encourages being part of a consortia. If you are interested in learning more about joining a consortia please contact us. GPEC can provide an economic impact analysis for your project to help quantify the economic impact of your project which you can include in your CHIPS Act funding application.

CONTRIBUTED BY



Don't hesitate to contact Sean Fogarty, VP, International Business Development, at [sfogarty@gpec.org](mailto:sfogarty@gpec.org), if you have any questions.

## Transforming Semiconductor Production in Singapore with Advanced Manufacturing

**S**ingapore's manufacturing industry is today being reshaped by Industry 4.0 technologies that pave the way for manufacturing to be smarter and more connected. With the nation looking to increase manufacturing value-add by 50% come 2030, companies are continuously looking at applying solutions like robotics, artificial intelligence (AI) and machine learning (ML) to help them achieve greater efficiency to realize this vision. In the semiconductor manufacturing sector where efficiency and precision are key, integrating advanced manufacturing technologies into our operations will be crucial to driving greater productivity while delivering consistent quality and reliability in our solutions.

Transport tracks at the ceiling to deliver wafer pods to processing machines. In our Singapore Expansion Fab, the AMHS is capable of making up to 110,000 delivery trips per day.

On the ground, hundreds of autonomous robots traverse the cleanroom, transporting wafer cargo between tools in an intricate network that comprises human and machine. These automations help to increase productivity by replacing menial and repetitive tasks, thereby freeing up our employees to focus on value creation and other higher value-added tasks.

GF Singapore also deploys Industry 4.0 technologies such as AI and ML to



Autonomous robot in action at GF Singapore

As the global semiconductor industry prepares for the next wave of demand recovery, manufacturers will need to be ready to respond quickly to shifting market needs. With the changing demand-supply dynamics, advanced manufacturing solutions will be the key to helping organisations stay resilient and agile for the needs of tomorrow's consumers.



View of GF's overhead Automated Material Handling System (AMHS)

At GlobalFoundries (GF), we prioritise maximising production efficiency and uptime while delivering consistently strong product quality as we operate in a high-volume-high-mix production environment. Our fabrication plants ("fabs") employ the use of robotics in our world-class cleanrooms to enhance our manufacturing operations and production lines. This includes our Automated Material Handling System (AMHS) that runs on Overhead Hoist

maximise production efficiencies, including wafer pattern recognition to help spot and narrow down defects, and to predict tool failures that can trigger preventive and predictive maintenance. Our custom-built AI engine is able to recognise and match wafer defects with tool fingerprints to quickly narrow down a deviant tool in the production process. This speeds up troubleshooting, while minimising downtime and excursions.

CONTRIBUTED BY



**Joseph Chia**  
Vice President and General Manager, Fab Operations



# YOUR ONE STOP LOGISTICS PROVIDER



- ✔ Customized Wooden Case
- ✔ Design and Engineering Capabilities
- ✔ Cleanroom Machinery Moving
- ✔ Cleanroom Machinery Packing
- ✔ Jacking and Skidding
- ✔ Air -Ride Transportation
- ✔ Warehousing
- ✔ ISPM15 Material Treatment

Call Now: +65 6288 8555



2 Tuas Basin Lane, Singapore 637066

enquiry@sin-chew.com.sg www.sin-chew.com.sg

**SIN CHEW**  
Sin Chew Woodpaq Pte Ltd  
Protecting & Positioning Businesses

## A\*STAR and centrotherm Establish Partnership to Advance 200mm Silicon Carbide Technology

A\*STAR and centrotherm International AG (centrotherm) have embarked on a partnership to advance 200mm Silicon Carbide (SiC) technology.

The partnership combines A\*STAR Institute of Microelectronics' (IME) 200mm open Research and Development (R&D) SiC pilot line, one of the industry's first, with centrotherm's cutting-edge diffusion and annealing tools.

Compared to traditional silicon-based semiconductors, SiC-based semiconductors are more energy efficient and have higher switching frequencies. These enable smaller power electronics modules to be built. SiC-based power modules can be found in a wide range

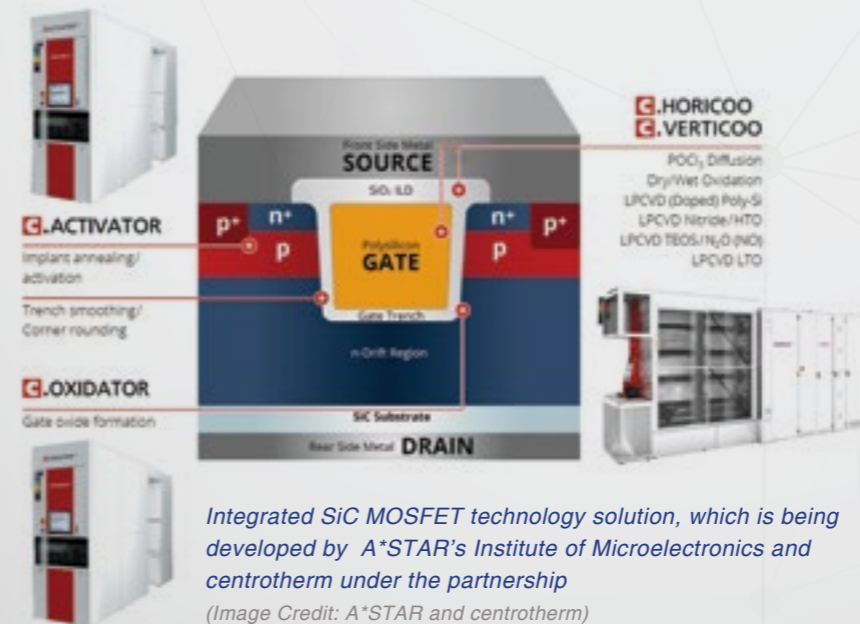
of power applications, such as electric vehicles (EVs), electric trains, data centres and power grids. However, SiC substrates currently have a large number of defects which need to be skilfully managed.

The collaboration aims to leverage IME's process integration and device characterisation capabilities and centrotherm's specialised tools to develop thermal processes for SiC-based device fabrication, such as optimising trench and gate oxide formation, so as to enhance the performance and reliability of SiC-based devices,

such as metal-oxide-semiconductor field-effect transistors (MOSFETs) and diodes. As part of the partnership, centrotherm will establish a dedicated technology team in Singapore to offer technological know-how, process recipes, and on-site support.

"We look forward to advance SiC technology through our partnership with centrotherm. Through the combination of IME's 200mm SiC R&D pilot line with centrotherm's advanced tools, we can accelerate R&D to better address the industry's needs," said Mr Terence Gan, Executive Director of A\*STAR's IME.

"This collaboration between IME and centrotherm marks an exciting chapter in the world of SiC technology. The shared vision, expertise and resources of both organisations promise to drive innovation, elevate industry standards and foster local growth in the field of semiconductor manufacturing. As we move towards the future of SiC and power electronics, we plan to further enhance diffusion and annealing specialisation in wide-bandgap process modules and expand expertise into SiC, GaN, and other innovative wide-bandgap materials," said Helge Haverkamp, Chief Technology Officer of centrotherm.



Integrated SiC MOSFET technology solution, which is being developed by A\*STAR's Institute of Microelectronics and centrotherm under the partnership  
(Image Credit: A\*STAR and centrotherm)

CONTRIBUTED BY



# Semiconductor Tradewinds – Dec 2023

**W**e are already at the end of 2023, it has gone fast, looking back at some of the key events of the year.

We started 2023 on the back of record year for semiconductor sales with sales in 2022 increasing +3% year on year (YoY) to a record US\$573billion. Despite 2022 being a record year there were already signs of the downturn with sales slowing in Q4'22, down -15% YoY and Q4 smartphone sales declining -18% YoY. It was hoped that that this downturn would be short and there was optimism that the market would recover by the 2nd half of 2023. Whilst we did seem to hit the bottom in Q2 the recovery since then has been very slow, and the current forecasts for 2023 are that global semiconductor sales will be down -10-11% YoY, with the memory sector hit particularly hard. Global sales of manufacturing equipment this year are also expected to be down around -6% as companies delay Fab expansions.

Despite the downturn in 2023, the semiconductor industry is still forecast to grow with a CAGR of 6-8% until 2030 and will reach US\$1 trillion around the end of the decade. Governments around the world want to have a share of this growth as well as increased supply chain security so

have been offering incentive schemes for companies setting up local manufacturing. The U.S. Commerce Dept opened applications for funding under the US\$52billion Chips and Science Act and defined the conditions to receive funding. In Dec, the first grant of US\$35million was awarded to defense contractor BAE Systems with a further 10-12 awards expected in 2024, some of them will be multi-billion dollar. The European Parliament approved the European Chips Act in April and individual European countries have been topping up the subsidies. Germany has so far led the activity announcing US\$52billion in subsidies earmarked for four major projects by Intel, Infineon, ZF/Wolfspeed and the TSMC consortium. However, this funding is in jeopardy recently after the German Supreme court ruled the reallocation of pandemic funds was unconstitutional, throwing Germany's 2024 budget funding into chaos, though the German government has vowed to find ways to find the funds.

TSMC announced it would delay production at its new U.S. 300mm Fab in Arizona until 2025 due to delays in the construction of the Fab. Amkor announced it will build a US\$2billion advanced packaging and test facility in Arizona with Apple as its major

customer near to the TSMC Fab. Construction of TSMC's new Japan Fab is progressing on schedule with equipment installation to be completed by end of Q1 2024 and production to start by the end of 2024, and there is talk of a 2nd and even a 3rd Fab planned in Japan.

Texas Instruments broke ground on its new US\$11billion 300mm wafer Fab in Utah next to its existing Fab. Foundry Powerchip announced plans to build a new US\$5.3billion Fab in Miyagi, Japan, and Vanguard International Semi is reported to be looking to build its first 300mm Fab in Singapore.

U.S. China political tensions continue to remain high with the U.S. announcing additional export restrictions in October designed to close loopholes in the original 2022 export controls which were designed to prevent China access to advanced semiconductors below 14nm. Whilst the restrictions are having a big impact, many equipment and semiconductor suppliers have announced revenue reductions due to the restrictions and supply chains are changing. However, there was surprise this year when Huawei launched its premium 5G smartphone powered by 7nm processors manufactured at SMIC, despite the export bans.

2023 has been a quiet year for mergers and acquisitions. Intel cancelled its planned US\$5.4billion acquisition of Tower Semiconductor after failing to get regulatory approval, whilst Western Digital and Kioxia called off their planned merger talks after failing to agree on terms. Western Digital subsequently announced it will spin off its flash storage business by the second half 2024. Toshiba accepted a US\$15.2billion buyout offer from an investment group led by Japan Industrial Partners and is set to delist in December ending its 74 year history as a public company.

Looking ahead to 2024, the general consensus is that the semiconductor market is expected to recover in 2024, especially in the 2nd half and analysts expect 2024 sales to exceed 2022 historic levels. Inventory levels are expected to recover back to normal for smartphone and consumer sectors by the end of 2023, whilst inventory levels for automotive and industrial are expected to recover by the 2nd half of the year. Latest forecasts from WSTS, Gartner and IDC predict the semiconductor market will grow between 13- 20% for 2024 with the memory sector leading the growth.

This growth will be driven by demand from computing and artificial intelligence (AI), data storage, wireless communication, and automotive electric vehicles (EV) and driver assistance (ADAS). Equipment sales are also expected to recover 24% in 2024 and reach US\$124billion.

So, it looks like 2024 will be a growth year for the industry, exactly how quickly this will happen depends a lot on the global macroeconomic situation, but things are looking up. Looking longer term out to the end of the decade, the outlook continues to look very positive as semiconductors continue to become more and more essential in all aspects of our increasingly digital lives.



CONTRIBUTED BY



**Mark Dyson**  
Foundry Account Director

amun OSRAM



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!**



### 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)

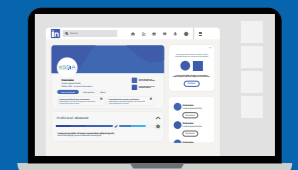
Strong targeted subscriber base

\*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!

