Volume 11

SINGAPORE SEMICONDUCTOR VOICE

T05SS0291A

A NEW MILESTONE FOR SSIA

Path to a Better Singapore Semiconductor Industry

2020: An Extraordinary Year with a "New Normal"

Optimal Health and Wellness – Making It a Priority in These Times

SSIA
Singapore Semiconductor Industry Association

SSIA
Singapore Semiconductor Industry Association

EVENTS CALENDAR 2021

JANUARY

Electronics Industry Day

MARCH

Semiconductor Women's Forum

APRIL

SSIA Automation Supplier Day

AUGUST

Supply Chain Forum

SEPTEMBER

SSIA Summit 2021

OCTOBER

Industrial Transformation ASIA-Pacific (ITAP)

NOVEMBER

SSIA AGM 2021

**Please note that the dates & zevents are subject to changes*

Please contact us at secretariat@ssia.org.sg if you would like to be a sponsor of SSIA events!

For updates, please visit *www.ssia.org.sg/upcoming-ssia-events* or scan QR code

Foreword by Executive Director

November 2020 marks an important milestone for SSIA. It has been two years since we started the SSIA transformation to better support our industry. End of this month also marks the end of the first Board members' term of office. While hitting the milestone is important, the journey we took will leave a memory in our life forever. It is a time to reflect on our journey in the past two years and how we have come to where we are today.

We started this journey by embracing the Electronics Industry Transformation Map (ITM) focusing on three areas – helping companies improve their productivity, supporting companies to innovate their product and services, and most importantly, growing the talent pool for our industry. This framework became the mantra which guided the SSIA Secretariat team.

Expanding our industry's talent pool is crucial in ensuring the continuous growth of our industry. With the strong support from companies and partners, we have successfully placed over 1,300 talents into our industry through the Professional Conversion Program (PCP) over the past three years. We have also nurtured over 80 leaders of tomorrow through the Singapore Semiconductor Leadership Accelerator Program (SSLA).

SSIA will continue to create a more vibrant environment for our companies to network and collaborate. It is our belief that by having a stronger local ecosystem, the industry will strive with more investors looking at Singapore as an attractive place to grow their businesses. This is also the reason for SSIA to form a Local Ecosystem Support Committee led by industry leaders from MNCs.

SSIA will never be where we are today without the support from companies and our partners. I would like to take this opportunity to thank you for your support. We need active engagement from companies so that we can remain relevant to support our industry's growth. We will also need help from companies to encourage their business partners and suppliers to join our members' network. The larger our network is, the bigger the opportunity will be for us to grow the industry.

I will be looking forward to meeting you at our future events, either virtual or hybrid format. Happy holidays ahead, and please continue to stay safe and healthy!

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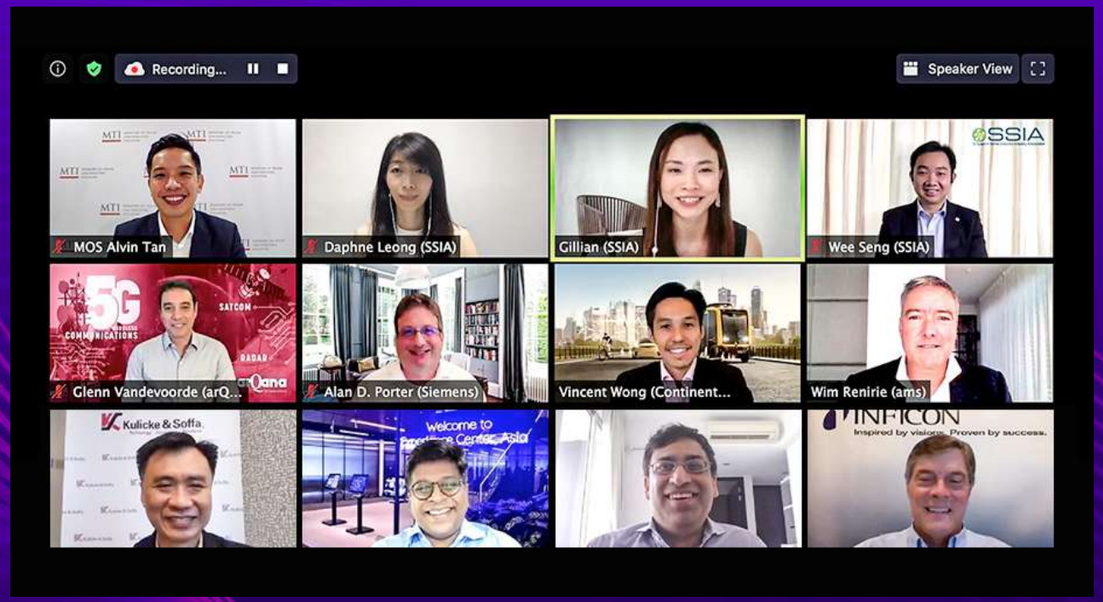
SSIA
Singapore Semiconductor Industry Association

REACHING ANOTHER MILESTONE

Singapore Semiconductor Industry Association (SSIA) has undergone a significant transformation in the last two years. It all started in early 2018 when the Association's Board of Governance assembled a Secretariat team and rewrote the constitution to have better governance over the running of the SSIA. After that, SSIA has been driving changes through the sector following the Electronics Industry Transformation Map (ITM) framework helping our companies improve productivity, innovate and most importantly, to grow our talent pool.

2020 has been a challenging year for both the semiconductor industry and SSIA. Over the past year, SSIA continued to transform to stay relevant to the industry's needs amidst the pandemic. Coming to the end of 2020, the SSIA AGM 2020 will be another milestone for the Association as Board Members for the next term, 2020 – 2022, will be elected to lead SSIA in making more transformations possible.

It is SSIA's mission to continue supporting the semiconductor industry's growth and creating a vibrant ecosystem. At the same time, the Association is looking forward to companies' continuous participation and engagement in future initiatives.



SSIA Summit 2020 Successfully Drew to a Close

Scan the QR code to view the presentations

Guest of Honour - Mr. Alvin Tan, Minister of State for Trade and Industry and Culture, Community and Youth

Record-breaking Attendance

With the strong support from the sponsors, speakers, partners and industry leaders, the SSIA Summit 2020 held virtually on 29 to 30 September 2020 came to a fruitful finish. The event broke last year's record attendance with over 400 participants from more than 200 companies. It provided key insights on the opportunities for the semiconductor industry, which is both the enabler and consumer of all the digitalization solutions.

The theme of this year's event was 'Opportunities for the Semiconductor Industry in the Digitalization Era.' SSIA was honoured to have Mr. Alvin Tan, Minister of State for Trade and Industry and Culture, Community and Youth, as the Guest of Honour. During his opening speech, he said, "The next generation of technology innovations such as autonomous vehicles and 5G-enabled ecosystems will be fuelled by breakthroughs in semiconductors. These new application areas will be long term growth drivers for the industry and our semiconductor companies will continue to play an important role in the global technology value chain." He added that COVID-19 has disrupted our economy, but it has also brought to fore many opportunities, including the acceleration of digitalisation efforts globally. He was confident that the spirit of resilience and innovation of the semiconductor industry will come through again.

On the first day of the event, the four speakers talked about how semiconductors have enabled different digitalization innovations in the consumer market and the enormous opportunities that it will bring to industry. On the second day, the event covered topics on how the sector should transform with digitalization solutions to stay relevant and competitive in the market.

Singapore Semiconductor's Intelligent Manufacturing Framework Committee

SSIA Executive Director Ang Wee Seng announced the launch of a committee focusing on defining Singapore Semiconductor's Intelligent Manufacturing Framework. This committee is headed by Dr. Jonathan Chang, Associate Vice President, Information Technology and Intelligence Management, Vanguard, and other industry leaders with support from institutions, particularly Singapore Polytechnic. The committee aims to publish the framework of typical semiconductor intelligent manufacturing operations. "This information will be crucial in helping local SMEs understand the needs of our semiconductor industry. We also hope that the information will drive innovation among the local ecosystem to better support semiconductor manufacturing with advancements in areas such as artificial intelligence."

Wee Seng added, "SSIA will continue driving the message of digitalization to our entire semiconductor ecosystem. It will be key to the growth of our industry and ensure that the industry is more resilient to future disruptions."

The Singapore Semiconductor's Intelligent Manufacturing Framework Committee has been set up to drive innovation and better support semiconductor manufacturing

Highlights of SSIA Summit 2020

29 SEP 2020

Theme: How Semiconductors Have Enabled Different Digitalization Innovations In The Consumer Market

How Artificial Intelligence Is Transforming The Semiconductor Industry
Alan D. Porter, Vice President, Electronics & Semiconductor Industry, Siemens Digital Industry Software

Spectral Sensing Enabled Digital LFT- Smart Device – Smart Decisions – Smart Nation
Wim Renirie, Vice President, ams

5G: Building The Infrastructure That Will Accelerate The Global Economic Recovery
Glenn Vandevoorde, CEO, arQana Technologies

Driving Towards Smart Mobility
Vincent Wong, Director of R&D, Continental Automotive Singapore

30 SEP 2020

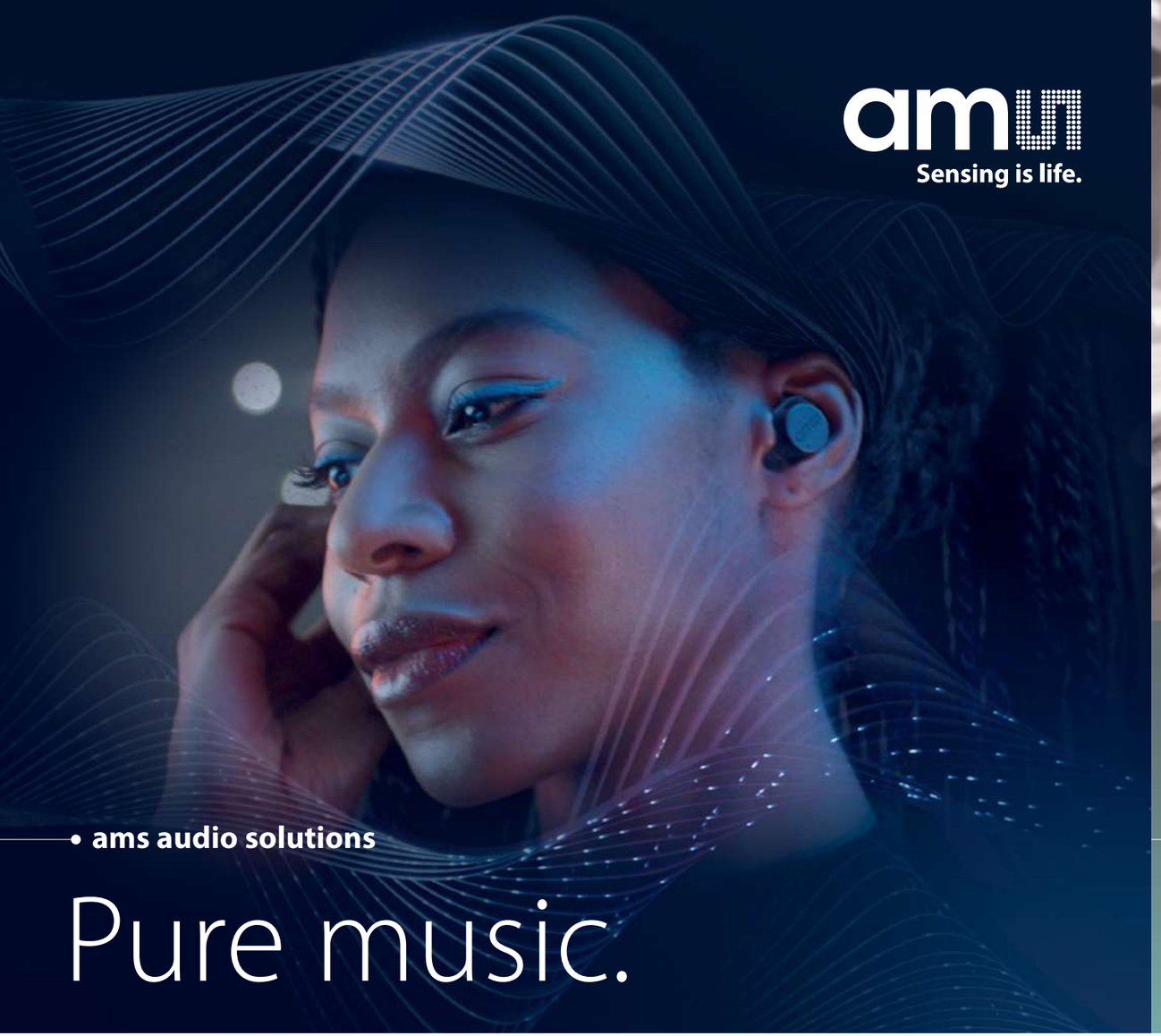
Theme: How The Semiconductor Industry Should Transform With Digitalization Solutions

Digitalization Will Make The Semiconductor Industry Stronger
Chong Chan Pin, EVP & GM for Product & Solutions, Kulicke & Soffa Pte Ltd

The Future Of Intelligent Manufacturing In Semiconductor Industry
Saj Kumar, Regional Business Leader, Manufacturing, Microsoft Asia

Line Balance Improvement With Global Optimization
John Behnke, General Manager FPS, Inficon

Impact Of Artificial Intelligence On The Workforce Of The Future
Rohit Girdhar, Vice President Strategy M&A, Infineon Technologies



Sensing is life.

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Pure music.

ams Digital Active Noise Cancellation (ANC) solutions deliver best-in-class leading ambient noise reduction, significantly improving sound quality for portable consumer devices.

ams Digital Active Noise Cancellation (ANC) technology tunes out ambient noise through market leading ANC performance >40dB. The technology simultaneously tunes in speech and music with its natural and boosted transparency modes.

The ams Augmented Hearing device supports feedforward, feedback, and hybrid ANC topologies as well as featuring Automatic Leakage Compensation (ALC) algorithms which – for the first time in the audio industry – enable for the very first time in the audio industry hybrid ANC functionality in loose- fit earbuds.

ams.com/active-noise-cancellation

Sensing is life.

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Testing reinvented.

The widespread use of Lateral Flow Tests (LFTs) is based on their simple design, which allows these tests to be produced and used in an affordable cost-effective way and at high volumes.

ams brings innovation to this market by introducing a proprietary, small, and cost-effective spectral sensor that improves the performance of LFTs. This is achieved by increasing the optical sensitivity, allowing multi-analyte detection, and enablinge different optical measurement methodologies such as reflection and fluorescence measurements.

The ams' solution is capable of measuring, for example, antibody build-up of different virus types at high accuracy (Influenza, Covid-19, etc.). The goal: minimizing the amount number of false-negative detections.

ams.com/technology/spectral-sensing

IP Management for the Semiconductor Industry

With Mr Daren Tang, ex-Chief Executive of Intellectual Property Office of Singapore (IPOS), becoming the first Singaporean to be appointed as the new Director-General of the World Intellectual Property Organisation (WIPO), it further proves the important role of Singapore in the global IP community.

IP management has played a significant part in our industry. Awareness of the IP law and tools will be key to helping companies manoeuvre their business, especially on the world stage. SSIA is collaborating with IPOS International on initiatives to bring such awareness to our companies, especially the SMEs, and the workforce who are supporting this industry.

A webinar with the theme "Want to grow your business? Start with your intangible assets" was co-hosted by SSIA and IPOS International on 28 October 2020. Reuben Lim, Head of Strategic Engagement of IPOS International, introduced to companies how they could leverage IP licensing to grow the business. He also discussed the core principles of strategic IP management, and how to unlock the value of intangible assets to scale their business. Companies were interested to learn about the different tools and support available for the IP management for their business.

Career Talks at ITE and TUM Asia

It is one of SSIA's missions to engage and entice the young engineering and science students across the Singapore Institutes of Higher Learning (IHLs) to join the semiconductor industry.

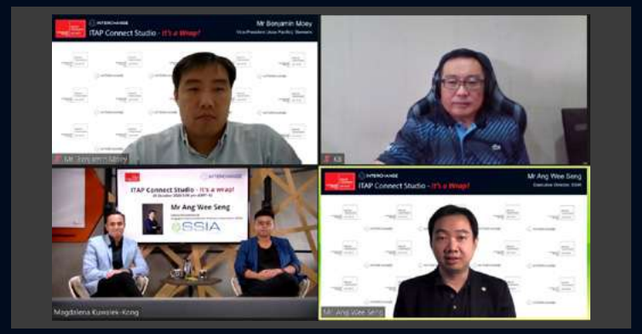
On 14 October 2020, SSIA Executive Director Ang Wee Seng was invited to speak as part of ITE College Central's Virtual Education and Career Fest 2020.

About 460 students and lecturers tuned in to hear Wee Seng's presentation on his career journey and career opportunities in the semiconductor industry. Students were most interested to know if higher education was required to get ahead in the industry. While most engineering positions do require degree level knowledge, Wee Seng also

Wee Seng Speaking at the ITE Career Fest 2020

highlighted that there are many career pathways in the sector and encouraged students to pursue lifelong learning to stay relevant in any career they chose to pursue.

Wee Seng also gave a talk at the "Innovation, Technology and Management" Masterclass at TUM Asia on 30 October 2020. It was the second year for him to share with their students on the Singapore Semiconductor ecosystem, the challenges and opportunities in the semiconductor industry as well as the latest update and initiatives launched by SSIA.



Wee Seng sharing his insights on the virtual session 'ITAP Connect Studio - It's a wrap!'

Supporting the New ITAP CONNECTED Platform

Industrial Transformation ASIA-PACIFIC – A HANNOVER MESSE Event, or ITAP, launched its third edition from 20 - 22 October 2020 with its first hybrid event format responding to the changed business landscape and customer needs.

The event kickstarted on the morning of 20 October with an opening address and an exclusive dialogue with Singapore's Deputy Prime Minister, Coordinating Minister for Economic Policies and Minister for Finance Mr Heng Swee Keat, as well as opening remarks by German Minister of State for Digitalisation at the Federal Chancellery Ms Dorothee Bär. The opening ceremony was held both in-person with a live studio audience at Singapore EXPO and simultaneously broadcasted on ITAP CONNECTED.

SSIA was one of the supporting organisations of this global industry event. As the member of the International Advisory Committee and one of the ambassadors of the Interchange – the community platform integrated to ITAP CONNECTED, SSIA Executive Director Ang Wee Seng shared his insights on the latest trends of the semiconductor industry in the virtual session 'ITAP Connect Studio - It's a wrap!' on 20 October 2020. He also engaged with participants on the Interchange to facilitate cross-industry learning, sharing, networking and collaboration.

Other activities in ITAP CONNECTED included interactive content personalised to participants' preferences, companies' showcase as well as physical bolt-on activities that enabled participants to optimise engagement and knowledge transfer opportunities.

SPRING Project

Moving forward, SSIA will support ITAP in their SPRING Projects, which will connect problem owners with partners in a cross-collaborative environment. Participants will be able to collaborate and co-create with the potential partners/customers for solutions to REAL industry challenges, with the opportunity to commercialise and access in-market channels. Companies are encouraged to join us as a Pilot Spring Project Partner and provide your challenge statement. Please visit ***https://itap-connected.com/network/interchange/projects*** or scan the QR code for more details.

Onsite guests in attendence at ITAP Opening Ceremony

Singapore Deputy Prime Minister Mr Heng Swee Keat giving his opening address

SOURCE OF CONTENTS

SingEx Holdings Pte Ltd
Organiser of ITAP

Behind the Scenes of the New SSIA Corporate Video Production

To introduce how it has transformed in the past two years to support the semiconductor industry's growth in Singapore and the region, SSIA will be premiering a new corporate video at the AGM 2020 on 26 November 2020.

The production of the video was more than simply pressing the record button on a video camera. The SSIA team kick-started the whole process by interviewing companies and government agencies whom the team has actively engaged over the past year, and inviting them to share their comments on SSIA.

The interviewees included representatives from ams, CEI Limited, Swagelok Singapore, Singapore Economic Development Board (EDB) and Intellectual Property Office of Singapore (IPOS) International. They spoke authentically about their experiences in participating in SSIA's initiatives–which have become the essential trait of the new SSIA video introducing the industry trends and its support for the semiconductor industry.

Let's have a sneak peek of the filming and hear their comments:

Interview with Zhuohan Cai (CEO, Swagelok Singapore) @ Swagelok Singapore

"I find their training courses very relevant - we have had many colleagues joining the Semiconductor Fundamentals course to understand the every process of the wafer fabrication, and their roles in the process.

It's also our pleasure to participate in the annual SSIA Summit as it enabled us to connect with other companies in the semiconductor industry. I appreciate the efforts that SSIA has done to bring us all together and create a truly vibrant ecosystem here in Singapore".

From Eric Cheng (Sales Manager, Swagelok Singapore)

"We have many associates participating in SSIA courses and the feedback has been excellent. The SSLA Program is especially note-worthy as it is unique in its very extensive breadth and depth of discussions, in addition to being an excellent networking platform. "

Interview with Kok Kitt-Wai (Director, IPOS International) @ SSIA office

"Intellectual property protection and commercialisation are critical to innovation and creativity–whether in translating ideas to products and services or driving business value. We are delighted to partner SSIA in driving innovation in the Semiconductor industry, and plan to collaborate in multiple areas such as programmes that help enterprises identify their intangible assets and develop strategies, grow skills and talents through IP education, leverage on enterprise tools and resources and continue to create good jobs for Singaporeans."

Interview with Soh Lip Leong (SVP & GM - ams AG) @ Soh's place

"ams has been a strategic partner of SSIA and had collaborated closely in many initiatives to renew and revitalize the local semiconductor industry, such as the Professional Conversion Program (PCP), which helps us recruit the mid-career talents who previously worked in other sectors.

For the year 2020, we have initiated 66 eligible PCP (29%) successful placement out of the 229 PMET new hires and saw the program's fruition. One great example of a successful mid-career switcher is Mr. Lim Khoon Tat Norman, who had converted from being a Biotechnologist (manufacturing operator) in the Pharmaceutical industry to Product Development Engineer in our Semiconductor industry.

Interview with Terrence Gan (SVP, Semiconductors Division, EDB) @ EDB office

"Singapore has a vibrant semiconductor ecosystem. Many of the largest semiconductor and semiconductor equipment companies manufacture, do R&D or undertake headquarters' activities here. Singapore's semiconductor industry has grown from strength to strength over the last 50 years, and we continue invest in new capabilities to capitalize on the growth in 5G, AI and electrification.

SSIA plays an important role by providing platforms for companies to boost their productivity, collaborate with one another and with public research, and develop their workforce. The EDB will continue to partner SSIA to enhance Singapore's role as a semiconductor hub in Asia and for the world."

Interview with Joseph Tan (General Manager, CEI Limited) @ CEI

"I appreciate the different channels and events organized by SSIA. This has provided us relevant updates, trends and initiatives by the government in supporting the semiconductor industry. The business matching by SSIA allows companies like CEI to explore potential collaborations with other companies in the same sector.

Through the various events, CEI had the opportunity to network and engage with other leaders in the semiconductor and automation space".

View the SSIA corporate video by scanning the QR code:

(Video produced by REDINOX)

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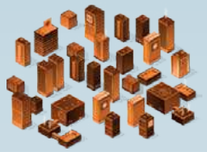
make possible

Make Possible
a Better Future

Big Data and AI are poised to transform virtually every industry, creating exciting new growth opportunities for semiconductor technology in the years ahead. Along with these opportunities, however, come challenges. There are more than 1,000 semiconductor fabs in operation globally today, and collectively these factories are estimated to generate 50 million metric tons of CO_2 annually. A key challenge the semiconductor industry now faces, is how to support the sustainable growth of AI and digitalization effectively without significantly increasing its environmental footprint.

At Applied Materials, we take a holistic approach to our business, looking at our environmental impact in light of how we operate, how we work with customers and suppliers, and how our technology can be utilized to advance sustainability on a global scale. Furthering our vision to “Make Possible a Better Future,” we recently announced new major sustainability goals and initiatives that will be driven within the company and in collaboration with customers, suppliers and the computing industry to reduce our carbon footprint over the coming decade.

1x
OUR IMPACT.



100x
INDUSTRY’S IMPACT.

10,000x
IMPACT ON THE WORLD.

SCIENCE BASED TARGETS

A More
Sustainable Company

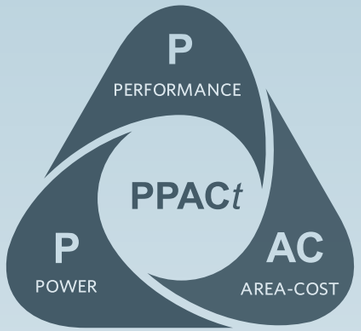
Within our own operations, Applied has set the following goals to reduce our environmental impact: 100 percent renewable energy sourcing in the U.S. by 2022 and worldwide by 2030, and a 50-percent reduction in Scope 1 and 2 carbon emissions by 2030. In addition, we have committed to setting targets through the Science Based Targets initiative (SBTi) and reporting in line with the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD).

Building a More
Sustainable Industry

To promote greater sustainability industry-wide, Applied is collaborating with our customers and suppliers on several initiatives. These include "ecoUP" – an effort to improve the eco-performance of Applied’s existing and new manufacturing systems. As part of this initiative, Applied set a "3 by 30" goal for our systems: on a per-wafer basis, we are targeting a 30-percent reduction in equivalent energy consumption, a 30-percent reduction in chemical consumption and a 30-percent increase in throughput density by 2030. We have also started a new initiative called SuCCESS2030 (Supply Chain Certification for Environmental and Social Sustainability), which aims at creating a more sustainable supply chain for semiconductor and display manufacturing. Through this initiative, Applied and its suppliers will work to reduce energy and emissions and conserve resources via the optimisation of materials and parts selection, procurement, packaging, warehousing, transportation and recycling. The program also aims to promote ethics, human rights, diversity and inclusion throughout the supply chain.

ecoUP

SuCCESS 2030



Enabling
Sustainable AI

Fueled by data from tens of billions of edge devices and emerging 5G networks, AI has the potential to generate new insights that can help address climate change and improve people’s lives. Yet at the same time, AI consumes a growing amount of power. In order to support the sustainable growth of AI and digitalization, major advances in the power, performance, area-cost and time-to-market (PPACt) of semiconductors are needed. Applied is enabling these advances by offering the industry’s largest and broadest portfolio of materials engineering technologies and products. In providing new ways to create, shape, modify, analyze and connect structures and devices, we help our customers accelerate their PPACt roadmaps to deliver new innovations to the world, and Make Possible a Better Future.

For more information, please visit **www.appliedmaterials.com**

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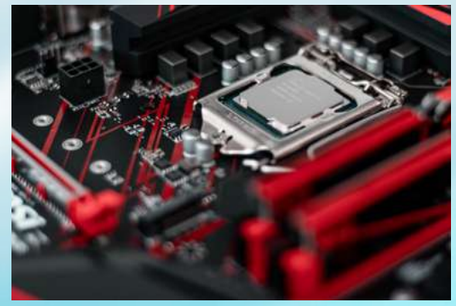
Path to a Better Singapore Semiconductor Industry



Early part of this year, as COVID-19 began to spread, semiconductor companies moved swiftly to protect employees and partners by implementing safe distancing and safety measures. At the same time, they secured the supply chain and continued manufacturing to meet the increased demand. COVID-19's business impact to the semiconductor industry has been minimal, in fact, there was an increase in demand due to work from home economy and demand in connectivity. However, we are affected operationally due to workforce shortages and, to some extent, supply chain disruption. With this pandemic experience, semiconductor leaders are looking ahead. It is an opportunity for the industry to emerge bigger and better.

Opportunities for Singapore Semiconductor Industry - Are we ready for it?

Firstly, there is an accelerated drive for digital solutions, both for consumers and manufacturers. Consumers look forward to seamless user experience, whereas manufacturers look forward to real-time data from Industry Internet of Things (IIoT) and remote access of data analytics for operation control, improvement and predictability.

Secondly, strengthening of the local ecosystem that has been supporting the industry will be crucial. With the COVID-19, circuit breaker and border closure experience in Singapore has brought out the importance of the local workforce and local suppliers supporting the MNC and OEM to continue operating smoothly. Focusing on attracting, training and retaining skilled local talents has become critical. Adopting and growing local suppliers are also crucial for business continuity.

Last but not least, breaking down the silo barriers of companies and working together will exude strength. With common goals towards improving the local semiconductor ecosystem, it will allow our industry to thrive further.

How Singapore's Semiconductor Industry Will Look Like 10-20 Years from Now

10-20 years will pass in a blink with the exponential pace of technological progress. Looking forward, Singapore will become an R&D hub with significant advancement in technology. It will be an attribute of our solid Intellectual Property (IP) laws, stable politics, excellent infrastructure and support to nurture this path. Besides this, we can envision manufacturing plants in Singapore will lead intelligent manufacturing globally and drive the highest productivity and quality. Today, Singapore is already the highest robot density in manufacturing, according to the International Federation of Robotics (IFR).

Together, let's partner and strive towards a more vibrant, competitive and sustainable Semiconductor ecosystem in Singapore.

ABOUT THE AUTHOR

Julie Koh
Julie has recently joined SSIA as Strategic Programs Director. She has over two decades of semiconductor industry experience; worked in the Foundry, Memory, as well as Equipment Supplier. Her key area of expertise includes Fab processes and equipment, manufacturing, customer engineering, backend supplier management and quality management. She will lead SSIA in developing and managing strategic programs with key stakeholders which include government agencies and partners of SSIA. Julie will play a key role in enabling SSIA to better support the industry's growth in Singapore.

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1. Based on HP review of 2018 published security features of competitive in-class printers. Only HP offers a combination of security features that can monitor to detect and automatically stop an attack then self-validate software integrity in a eboot. For a list of printers, visit hp.com/go/PrintersThatProtect. For more information: hp.com/go/printersecurityclaims.

2. Based on HP Internal testing using normalized TEC Value, 2019.

HP Color LaserJet Pro MFP M479fdw

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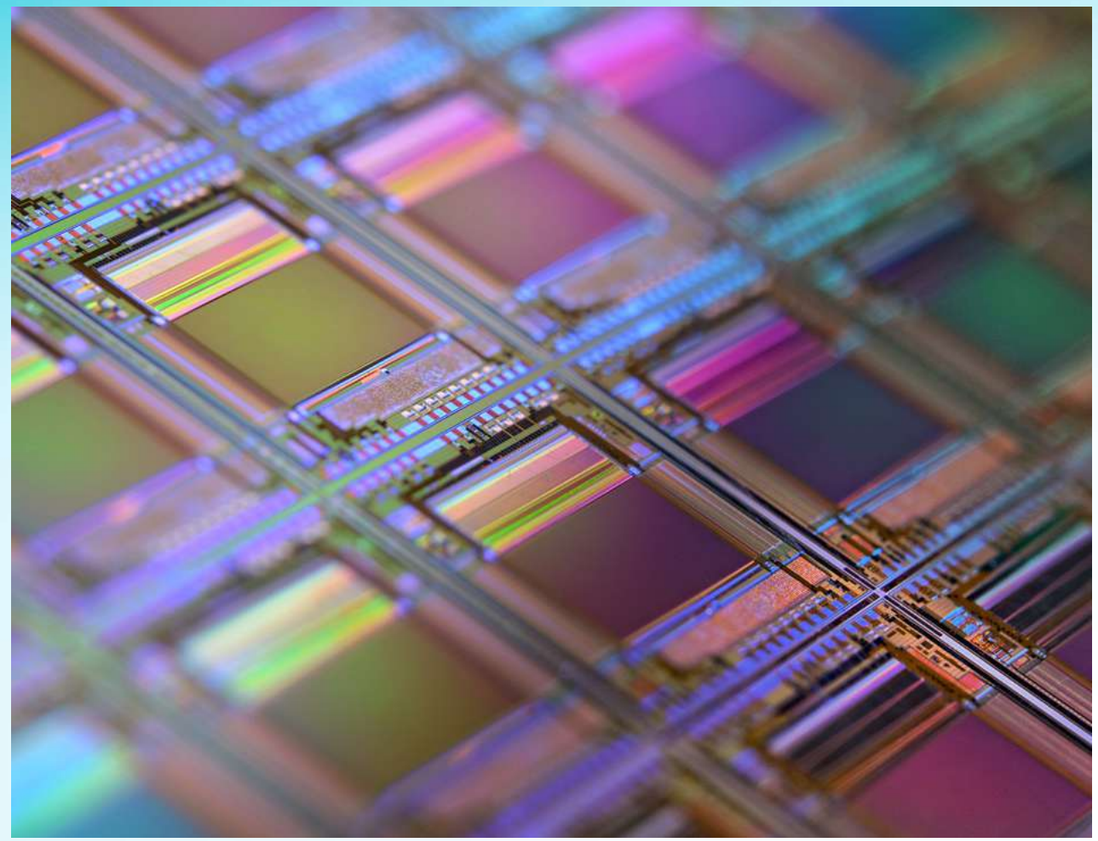


Fan-Out Wafer Level Packaging for Next Generation mmWave Antenna in Package Applications

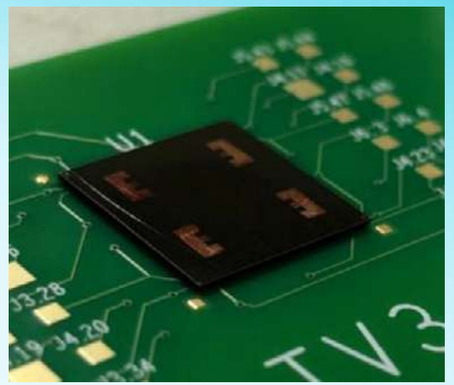
A*STAR's Institute of Microelectronics (IME) has collaborated with leading industry players to establish 300mm Wafer Level Package development line (WLP-DL) to drive the application of fan-out wafer level packaging (FOWLP) for achieving innovations in current and next generation system-in-package (SiP). The state-of-the-art 300mm FOWLP development line supports industry partners across the semiconductor supply chain by leveraging IME's advanced packaging expertise, novel heterogeneous integration solutions, and design enablements including SiP Process Design Kit (PDK). IME's 300mm WLP-DL enables industry players across the supply chain [end-users, fabless companies, integrated device manufacturers (IDMs), foundries, outsourced semiconductor assembly and test (OSAT) companies, equipment makers, electronic design automation (EDA) companies, and material suppliers] to create new and enhanced products that are increasingly driven by applications such as 5G, high-performance computing, hyperscale data centres, autonomous vehicles, medical wearable devices and advanced sensors.

As global connectivity transitions into 5G, the semiconductor industry gears up to develop technologies and products that drive the sophisticated packaging formats required to manufacture integrated circuits (ICs) for handsets, base-stations, and customer-premise-equipment (CPE).
For example, base stations require integration of the Power Amplifier (PA) chips, millimetre wave monolithic ICs (MMICs), passive components and millimetre wave (mmWave) antenna arrays to support high speed and high bandwidth communication. To ensure low electrical losses and optimal RF/mmWave performance in tightly-integrated mmWave SiP, key must-haves include multi-chip package design optimisation, new packaging materials, and tighter process controls. Such mmWave SiP combines the MMIC and the antenna within the same package module, called antenna-in-package (AiP) which brings the MMIC much closer to the antenna than earlier implementations to reduce the signal losses in next generation wireless systems.

FOWLP offers 300mm precision wafer manufacturing, excellent design flexibility, and packaging material choices which makes it ideal for implementing the mmWave AiP structure. The mmWave 3D-FOWLP Antenna-in-Package implemented by IME is a novel double-molded structure based on IME's FOWLP technology, which can provide optimised performance in smaller package area. Using FOWLP integration, the antenna is designed on top mold layer while the bottom mold layer houses the MMIC – thus reducing the package footprint, which is critical for mobile applications.

Underside of the AiP with solder ball

The wafer level Copper Redistribution Layers (RDL) provide precise transmission lines and antenna feeds that enable the antenna function. The AIP structure can also be used to design a scalable sub-array of AiP. The sub-array is then used to realise the compact antenna array with more elements,



AiP assembled on the PCB

to meet the requirements of for wireless infrastructure (base station) applications. Application of the AiP structure removes the need for a separate high-frequency board between the MMIC package and on-board antenna - thus making the solution compact and more cost- effective for a variety of mmWave applications including 5G and automotive radar.

IME also provides SiP designers with design enablements including process-design-kit (PDK) to allow designers to create the SiP design using FOWLP technology. Thus, from design to proof- of-concept to product-prototyping, the FOWLP development line combines IME's design enablement and advanced FOWLP technology to provide end-to-end advanced package manufacturing solution to industry partners. Through this capability, IME enables industry partners to accelerate product development through differentiated SiP solutions.

For more information about this research, please contact Mr Javen Tan at javen_tan@ime.a-star.edu.sg

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A*STAR's Institute of Microelectronics (IME)
www.a-star.edu.sg/ime

Semiconductor Tradewinds – 2020 An Extraordinary Year with a "New Normal"

What a roller coaster of a year 2020 has turned out to be for semiconductors. The year started off on a very optimistic note, then we were hit by the COVID-19 pandemic which turned sentiment to be very pessimistic, then as we learned to cope with the pandemic despite it is still not being under control. We end the year with the semiconductor market once again on an optimistic note.

If you remember 2019 was not a particularly good year for the semiconductor industry, especially the first 3 quarters. However, by Q4'19 we had started to see a recovery in the market and it was predicted that this recovery would continue into 2020. At the beginning of 2020, global annual semiconductor sales were forecasted to rise around 6% YoY with foundry sales expected to outperform the overall market. Equipment sales were also expected to increase 5.5%.

Then at the end of January, COVID-19, as it would later be known, broke out in China. China went into lockdown and this prevented many Chinese factories from being able to re-open after the Chinese New Year break. Very soon the pandemic had spread worldwide and lockdowns were imposed in many countries, shutting many factories.

As the months have gone on, countries learnt to "cope" with the virus and a "new normal" way of living including working and studying from home has been implemented to balance people's health vs the economy. This new normal created new demand for semiconductors, allowing the semiconductor industry to fare relatively well despite the world's overall economy shrinking.

Despite the roller coaster ride as we are near the end of 2020, the semiconductor segment has managed to have had a relatively solid year. In the early part of the year, the stay at home economy drove semiconductor sales due to a strong demand from the datacentre segment, notebooks and other home electrical appliances. As we get into the 4th quarter, the usual seasonal demand especially for smartphones, together with the automotive industry picking up is continuing to keep demand high. Latest forecasts predict that global semiconductor chip and equipment sales will outperform the global economic market. Foundry sales are forecast to increase between 15~19% this year, the highest growth since 2014. TSMC has announced it expects to outperform the market and is forecasting their revenues will grow 30% this year. The memory segment is expected to be up around 12% this year driven by demand for NAND flash. Semiconductor equipment sales are also expected to be up between 5~8% this year with advanced logic and foundry fabs driving the growth.

US-China Trade War

On top of the issues caused by the pandemic, the US-China trade war has continued to escalate. For the semiconductor market, the main impact has been from the restrictions put on Huawei and its supply chain. Last year in May, the US placed Huawei on its entity list as it was deemed a national security risk, and banned US companies from doing business with Huawei.

Despite the ban, Huawei continued to grow and improve its technology for a while. In Q2 2020, Huawei achieved its long term goal first announced in 2016. Due to strong sales in China, Huawei overtook Samsung as the world's number one smartphone manufacturer. This position only lasted 1 quarter as the US government expanded the original restrictions twice in between May and August. The result of which has effectively stopped Huawei from receiving parts from all semiconductor companies worldwide from Sept 15th 2020 onwards if they used US technology or software in the manufacturing or design of the product. Companies need to apply for a license to sell to Huawei, but to date despite many applications from companies, only Intel and AMD have publicly announced that they have been granted licenses.

In addition to the direct ban on Huawei, the US has been putting pressure on countries not to install Huawei equipment in their future 5G networks. To date, this pressure has had varied results, whilst Europe, North America and Australia have either banned or are unlikely to use Huawei in their 5G networks, countries in South America, Africa and parts of central Asia are unlikely to exclude Huawei.

Chinese number 1 foundry, SMIC, has also come under the scrutiny of the US government. Although SMIC has not been placed on the entity list, it has acknowledged that its equipment suppliers have received notices that they need to apply for a license to sell equipment to SMIC, which could prevent SMIC from developing and producing new technology nodes in future.

Amidst the trade war, both the US and China have been rolling out measures to enhance their domestic semiconductor segments. This year, China has introduced new tax incentives to boost the semiconductor sector exempting qualifying domestic companies from corporate income tax for using advanced technologies from 65nm and below.

In the US, the government has been putting in measures to reverse the decline in US-based semiconductor chip capacity by trying to attract companies to set up manufacturing sites in the US. The most notable success has been TSMC's announcement to build a 5nm fab in Arizona. In July, the "American Foundries Act" bill was introduced in Congress, which will provide federal grants for semiconductors of up to US$25 billion if approved. A study by SIA found that Federal Grants of US$50 billion over the next 10 years would be needed to increase the amount of world semiconductor capacity in the US from the current ~12% to 13~14% in 10 years' time.

Mergers and Acquisitions

After a slow start, what a year 2020 has been for M&A activity, and now 2020 is heading to be the highest ever year for M&A activity beating 2015 (US$107.7 total) due to 5 large acquisitions having been agreed. Analog Devices acquired Maxim for US$21 billion, then Nvidia acquired Arm from Softbank for US$40 billion. This was followed by AMD acquiring

Xilinx for US$35 billion, Intel sold it's NAND business to SK Hynix for US$9 billion while Marvell acquiring Inphi for US10billion.

Outlook

At present, the outlook is looking good for 2021. SEMI is predicting that global silicon wafer shipments will continue to rise in 2021 and reach a record high in 2022. They are also predicting Fab equipment spending to continue to grow in 2021. However, there are several external factors like the pandemic or the trade war on the horizon that could potentially derail the industry. We need to hope that these are managed well over the coming months. Looking forward to a bright 2021.

ABOUT THE AUTHOR

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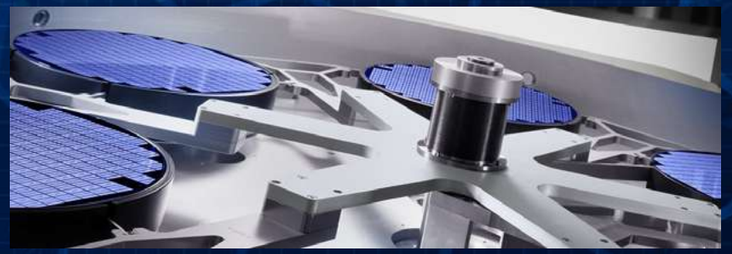
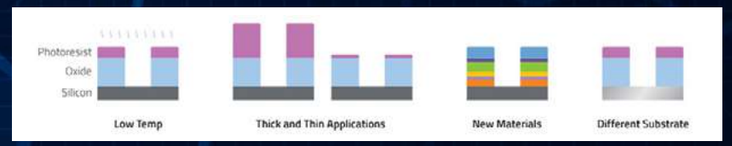


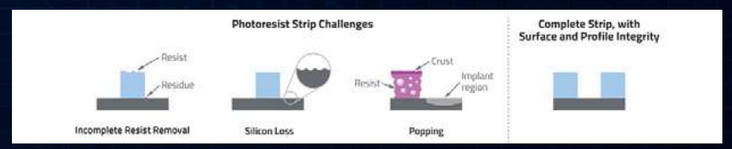
GAMMA® Dry Photoresist Strip Systems

Lam's newest product in its line of GAMMA® dry photoresist strip systems, brings the performance of the GAMMA® GxT® 300 mm to 200 mm wafer processing. The GAMMA GxT has been specifically designed for the specialty technologies market, bringing exceptional reliability, productivity, and flexibility to these applications.

Photoresist strip has historically been a low technology process, but has become increasingly more complex with 3D structures, double patterning, multiple layer masks, and high dose implant strip (HDIS) applications. Many requirements have been or are being actively addressed for advanced memory and logic nodes at the 300 mm wafer size. However, those challenges at 200 mm for specialty technologies – including RF filters, power, read heads, and digital printing – are often ignored by the leading equipment OEMs or manufacturers. The technology differentiators at 300 mm are not necessarily common to 200 mm, where low temperature processing, the ability to handle both thick and thin resists, alternate materials for strip, and multiple substrate type handling dominate.



Strip applications are needed throughout the process flow. Each application presents its own set of needs and requires the capability to handle multiple applications in one system.



The GAMMA GxT is an industry leading multi-station and multi-process solution for advanced strip applications with high reliability and productivity. Multiple process steps can be performed with maximum flexibility and productivity on the same platform, enabled by Multi-Station Sequential Processing (MSSP) architecture. This allows for independent control of temperature, RF power, and chemistry. The system provides residue-free results with high throughput and low defectivity performance for both bulk and implant strip applications due to enhanced source technology combined with faster wafer heating.

A wide array of chemistries are available with the flexible gas box:

- Traditional O_2/N_2 for bulk strip from thin DUV photoresist layers to >10 µm i-line and thick amorphous carbon ash
- CF_4 HDIS and polymer removal
- and H_2 or forming gas (FG) for HDIS and low silicon or residue removal

Low temperature capability down to 110˚C for descum and a wide temperature window for standard processing, facilitates a broad range of specialty technology processes for semiconductor and advanced hard-drive applications. Industry leading mechanical throughput up to 350 wph with a small footprint provide exceptional productivity.

Lam's 200 mm GAMMA GxT has been specifically designed to address the challenges of the specialty technologies market, bringing exceptional reliability, productivity, and flexibility to these applications.

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Lam RESEARCH

STMicroelectronics

life.augmented

Our company at a glance

At ST, we are creators and makers of semiconductor technologies. We work with our customers and partners to design and build products, solutions, and ecosystems that address their challenges and opportunities, and the need to support a more sustainable world.

WHAT WE DO

We create semiconductor solutions which are integrated into each of the billions of electronic devices people across the globe interact with every day. By getting more from technology to get more from life, ST stands for life.augmented.

WE ARE DRIVERS OF YOUR INNOVATION

We build products, solutions and ecosystems that enable smarter mobility, more efficient power and energy management, and the wide-scale deployment of the Internet of Things and 5G technology.

At ST, we are creators of technology.
Our technology starts with You.

KEY FACTS

- Independent device manufacturer with 11 main manufacturing sites
- President and CEO: Jean-Marc Chery
- Public since 1994: traded in New York, Paris, and Milan
- Corporate Headquarters: Geneva (CH)
- Committed to sustainability: Signatory of the United Nations Global Compact (UNGC), Member of the Responsible Business Alliance (RBA)

SALES & MARKETING

- $9.56 billion revenue in 2019
- 80 offices in 35 countries
- Over 100,000 customers worldwide

PEOPLE & INNOVATION

- ~46,000 employees worldwide
- 105 nationalities
- ~7,800 people working in R&D and product design
- 18,000 active patents

Semiconductor solutions: one of the industry's broadest product portfolios

We create innovative semiconductor solutions based on:

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Discrete & Power Transistors	MEMS & Optical sensing solutions	ASICs based on ST proprietary technologies

Our products and solutions enable customer innovation

Trends that drive our innovation

Smart mobility

Thinking differently about how we move around, reducing pollution and congestion through car electrification and digitalization

Power and energy

More efficient power and energy management to address increasing global energy demand while reducing the environmental impact

Internet of Things & 5G

Transforming every area of our lives and the objects we use with billions of cloud-connected devices for personal, business, and public applications

Technology

We have a unique set of chip-manufacturing and packaging technologies enabling solutions for the markets we serve.

MEMS for sensors & Micro-actuators	Smart Power: BCD (Bipolar - CMOS - Power DMOS)
FD-SOI CMOS FinFET through Foundry	Discrete, Power MOSFET, IGBT Silicon Carbide, Gallium Nitride
Analog & RF CMOS	Vertical Intelligent Power
eNVM CMOS	Optical sensing solutions

Packaging technologies
Leadframe – Laminate – Sensor module – Wafer level

Manufacturing facilities

We believe in the benefits of owning manufacturing facilities and operating them in close proximity and coordination with its R&D operations.

France (Crolles, Rousset, Tours)	**Singapore**
Italy (Agrate, Catania)	**Malaysia** (Muar)
Malta (Kirkop)	**China** (Shenzhen)
Morocco (Bouskoura)	**Philippines** (Calamba)

- Front End (Wafer processing)
- Back End (Assembly and test)

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Realising the Smart Factory Vision through an AI-of-Things (AIoT) Approach

The Digital Age is bringing a wave to change to the factory and production floor, offering the promise of radically transforming the industrial space with a vision of the 'Smart Factory' of the future. However, definitions of a 'Smart Factory' are many, forcing manufacturing companies all over the world to grapple with uncertainty about the dramatic changes they need to plan for in order to help their business thrive in the future.

Breaking Down the Smart Factory

A Smart Factory concept blends digital transformation and intelligent manufacturing trends. The notable drivers of these trends are the Internet of Things (IoT) and Artificial Intelligence (AI) but it is important to understand the interaction between the two.

IoT concerns the ability of all electronically-enabled sensors, devices equipment and applications to be interconnect, so that each can be identified by others in the network. The industry has coined the phrase 'Industrial IoT' (IIoT) to describe the flavour of IoT within an industrial ecosystem or organisation.

Artifical Intelligence is when a digital system itself is capable of completing objectives or tasks, and is also able to learn from the data in a seemingly intelligent way.

The synergy in the intersection of IoT (or IIoT) with AI has been termed an 'AI of Things' (AIoT). Essentially, AI is infused into an IIoT environment to enable the devices and equipment to be able to independently examine data, analyse it, make decisions and act on the basis of those decisions, all without any human involvement.

A rough illustration here could be the IIoT components as a body's nervous system, with the AI capability the brains of the organism - orchestrating, analysing, deciding and acting.

AIoT in Electronics Manufacturing

AIoT represents a fundamental paradigm shift for the industry and a massive step towards a vision of achieving the Holy Grail of zero DPPM manufacturing while boosting quality, yield and cost standards across the entire electronics manufacturing value chain.

At its core, the crucial characteristic defining the AIoT promise is the massive proliferation of intelligent, automated decision making capabilities across the IIoT network. Decisions begin with the analysis of data, so enabling data analytics with an AIoT approach can be a logical and attractive starting point with relatively low initial investment.

An AIoT-enabled data analytics set-up augments benefits by generating useful data-driven insights that can be used to help the manufacturing

system learn from, be optimized, and generate higher performance, or to help users make better decisions.

Let's look at one example. Wire Bonding is one of the critical processes in semiconductor assembly and quality assurance via sampling to spot defects at the factory gate is a typical step. However, sampling has its risks, as defective components can escape detection. Root cause analysis is also very onerous when defects are detected, with the massive data points typically involved making traditional analysis very difficult. The cost of product recalls can also be very costly.

The relentless chase towards zero DPPM is hard to achieve using traditional means. An AIoT-enhanced data analytics approach for the Wire Bonding Process flips this scenario on its head, with quality data points analyzed in real time and out-of-control conditions and defect generation predicted and automatically corrected before output quality is affected. Predictive, automated decision making such as this - 100% quality assurance without Human Intervention - totally revolutionizes and transforms current industrial approaches toward Quality Control

Taking AIoT Forward

From this starting point in data analytics, the expertise and domain knowledge in incorporating AI into the IIoT environment could eventually be applied to the entire electronics manufacturing process. Apart from productivity and yield improvements, technological advancements and breakthroughs that are also more likely to happen due to powerful insights derived from AI-augmented data mining and analytics capabilities. Eventually, organisations that excel in the execution of AIoT will pull ahead of the pack in terms of continuous innovation, and become stronger. ASMPT's AIoT approach to realize the Smart Factory for electronics manufacturing involves a detailed methodology requiring patience and commitment on a journey that can span years with challenges such as handling/ enabling legacy equipment, software integration efforts, and the ubiquitous ROI justifications to stakeholders, among others.

But it can be a worthwhile journey. With an AIoT approach properly put in place, the entire manufacturing value chain can be increasingly equipped with new ways to develop, innovate, and manufacture. The ultimate goal is to enable customers to produce faster, better and more cost- effectively and flexibly, without compromising increasingly stringent standards of safety and quality.

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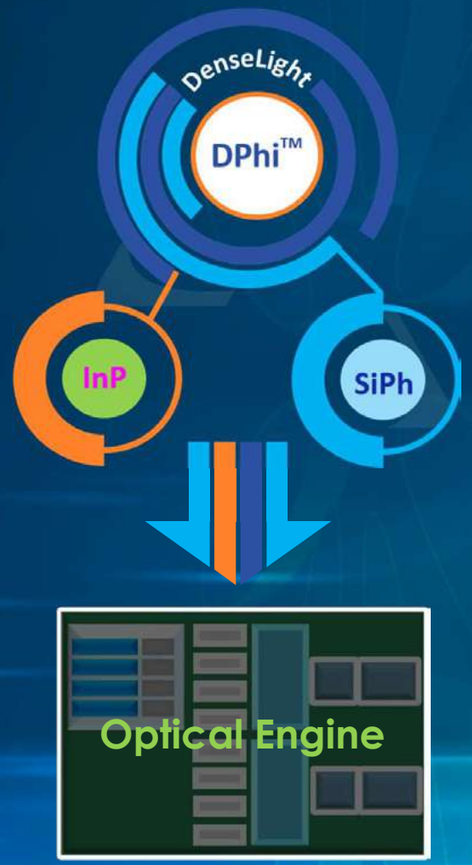
ASM Pacific Technology

DPhi™ DenseLight

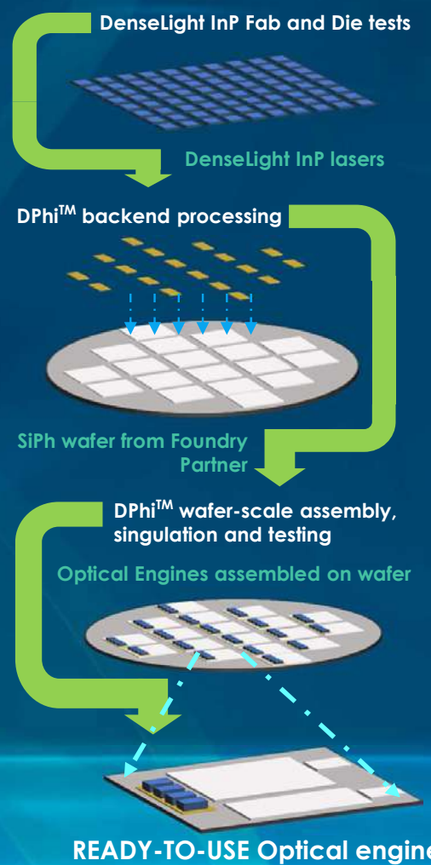
DenseLight Photonics Hybrid Integration

One-stop Synergistic Integration of InP, SiPh through DPhi™

Optical Engine Powered by DPhi™



DPhi™ Packaging Technology



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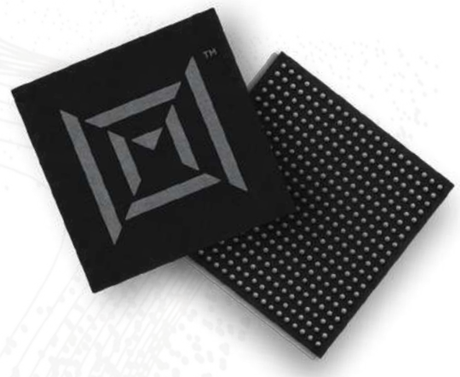
- 10,000+ patent worldwide
- Research and development centers located in USA, Singapore, Israel, Germany, China



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Supporting Local SMEs Underpinning the Semiconductor Industry Amidst the COVID-19 Pandemic

The COVID-19 pandemic has impacted the economy and many businesses in Singapore and around the world, both large and small.

Challenges Faced By Local SMEs

For many small and medium-sized enterprises (SMEs), survival becomes the primary concern as businesses struggle to weather the economic fallout from COVID-19. While SMEs tackle operational challenges, they are facing other tough challenges such as flagging sales, cash flow as well as supply chain disruptions, workers under lockdown, delayed customer payments, and customers changing order priorities.

Call to Support Local SMEs

SMEs represent a key pillar in Singapore's economy and their survival is imperative to the success of our nation. GLOBALFOUNDRIES (GF) Singapore recognizes the importance of local SMEs and initiated a call to support them amidst the onset of the current crisis. With the increasing demand for semiconductors, GF is taking a more proactive approach to help build a stronger, more resilient local supply chain and ecosystem to support the industry.

Semiconductor—A Vital Industry

Over the past several months, the semiconductor industry has become more vital than ever, especially at such a defining time.

Millions of people are working from home and engaged in online learning. Without the support of home-office tech and electronics, many will face the task of telecommuting and remote learning. This created soaring shipment demand for consumer electronics such as laptop computers, Wi-Fi routers and countless electronic applications during the ongoing pandemic.

Semiconductor-based diagnostic devices are in great demand. These devices are needed to help healthcare professionals to monitor patients for pneumonia and lung-related symptoms associated with COVID-19. To fight the contagion, supercomputers with high-performance computing are used for COVID-19 simulation analyses, virus detection researches, contact tracing, mutation studies in the coronavirus genome, virus vaccines development, and more.

More consumer services are going contactless in the light of this pandemic. This has accelerated the adoption of digital technologies. To successfully ride the wave of digital transformation, companies are investing and modernizing their IT infrastructure to analyze increasing data and turn them into actionable and data driven insights.

Importance of SMEs in Our Ecosystem

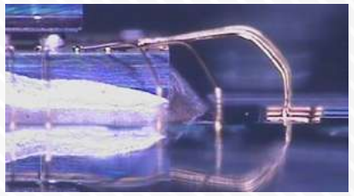
GF has been actively navigating the pandemic crisis while taking extraordinary steps to safeguard its workforce and manufacturing operations. Besides, the company continues to provide support to the community it is operating in, protecting and connecting the world. In these difficult times, we further experienced the importance of the interconnectivity of our business ecosystem, particularly with the local SMEs whom we work with very closely in Singapore.

SMEs are an essential part of Singapore's economy – employing two thirds of Singapore's workforce and contributing nearly half of the nation's Gross Domestic Product (GDP). To date, a significant number of local SMEs have been severely affected by the pandemic crisis and these businesses have been struggling to survive without help. GF Singapore recognizes the criticality to support the livelihoods of these small businesses and also sees the bigger role that SMEs can play in global supply chains – these SMEs have the potential to provide more value-added customized services and high quality products at faster speeds to market.

Building Stronger Capabilities

To assist SMEs get back to business, GF Singapore initiated a capability program to assist them in moving up the value chain. GF began collaborating and supporting a local SME – Intech Technologies (INTECH) – to develop and enable new assembly packaging technologies and capabilities.

"GLOBALFOUNDRIES has been providing many opportunities to INTECH since the inception of the company more than 10 years ago. Throughout these years, INTECH has grown from strength to strength in meeting the demands of the market. We are very privileged to be a supplier to GF and especially so during this COVID-19 pandemic. We are able to continue to grow our capability and capacity with GF and our collaboration can certainly help to enhance our products and solutions portfolio, putting us in a better light with a competitive edge in the market.



System-in-Package (flip chip with wire bond assembly)

Wire bond assembly

Riding on this initiative, INTECH has huge opportunities in expanding its existing packaging assembly line, upskilling our workforce and core competencies," said Mr Lee Soon Chin, managing director of INTECH.

Wafer dicing operation

Wire bonding operation

The outcome of this collaborative initiative will be extremely beneficial for both companies. The build-up of this reliable and first class packaging capability will also open up more gateways for other local SMEs like INTECH to serve the semiconductor industry and its ecosystem in Singapore and around the world amidst these challenging times.

GLOBALFOUNDRIES Singapore supporting INTECH in moving up the value chain

"GLOBALFOUNDRIES Singapore is happy to partner with INTECH, as part of our initiative to support our local SMEs in moving up the value chain. INTECH's ability to provide a fast turnaround cycle time will be a value add to meet GF Singapore's time to market requirements," remarked Mr KC Ang, Chief Manufacturing Officer, Worldwide Fab Operations of GF. "We would like to see more of such collaborations as they will further enhance our local semiconductor ecosystem and strengthen the industry's capabilities as well as self-sufficiency in the supply chain."

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SOURCE OF IMAGES

GLOBALFOUNDRIES Singapore and INTECH

Siltronic A Silicon Wafer Manufacturer in Semiconductor Industry

In Singapore, Siltronic operates one of the world's most advanced production facilities for high quality 200mm and 300mm silicon wafers.

Siltronic Singapore Pte Ltd (SSP) was established in 1997 for the manufacturing of 200mm wafer. This manufacturing facility gave Siltronic an inaugural presence in Asia's growing market by being close to its Asia customers and was a key milestone for the company.

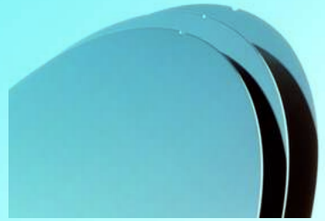
In 2006, a new 300mm wafer manufacturing facility was established together with the semiconductor joint venture partner - Samsung Electronics Co. Ltd. In 2014, Siltronic increased its shareholdings with the entity re-named as Siltronic Silicon Wafer Pte Ltd (SSW).

The two legal companies operating under one-system and one-management synergy concept makes Siltronic a strong and robust site in Singapore. Yet, 2019 marked another momentous milestone for Siltronic with the official opening of a new CZ crystal pulling hall in Singapore to meet the increasing wafer demand.

Appreciation notes and frames from Siltronic's School Bursaries Recipients

Stay Competitive in Semiconductor Manufacturing

Smartphones, laptops, servers, industrial applications and cars are just a few applications in which Siltronic wafers are used and with which almost everyone comes into contact in daily life. These hyperpure silicon wafers are processed by leading semiconductor manufacturers into semiconductor components. One critical success factor for Siltronic is the technological competency necessary for its highly complex manufacturing processes. Stringent requirements at end-user applications continue to drive the needs for the reduction in Design Rules. The ability to continuously develop new Design Rules has made Siltronic one of the



Siltronic wafer

technology leaders in this field. Today, Siltronic holds some 1,850 patents and patent applications and is one of the five major manufacturers worldwide offering 300 mm silicon wafers for the semiconductor industry.

Apart from successful technological development, Siltronic focuses on development and growth of its people. Employees are given opportunity to develop their expertise in various disciplines such as engineering, technology, metrology, innovation, business processes, etc. In addition, Siltronic plays active roles in its corporate social responsibility. Since 2011, it has been providing school bursaries to some financially needy students of primary schools in the neighborhood where Siltronic is located. Siltronic was one of the contributors to the "Grow-a-Reef Garden" initiative in 2018 to enhance marine biodiversity.

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Siltronic
www.siltronic.com/en
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Chung Choon Hiang
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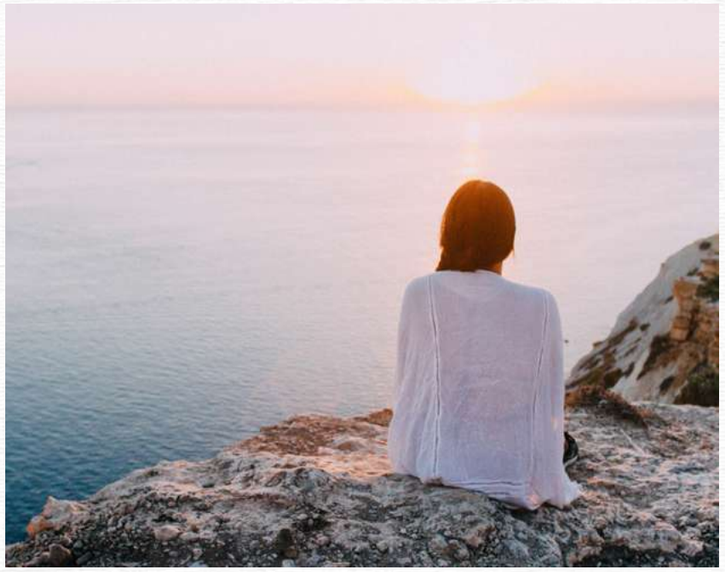

Wisdom of the Wellness Doctor: Optimal Health and Wellness – Making it A Priority In these Times.

Paradoxically the pandemic has not treated everyone the same. Some companies with the right products for the global pandemic have done very well. However, many have taken a great financial hit, others have had to pivot to something else, or several have just closed shop. In these crazy times, the thing we may have failed to focus on a bit more is our own physical and mental health and wellbeing.

More so than just keeping our business going and getting back to pre-Covid levels, we need to create a more robust habit and become more resilient health-wise. This will enable us to handle what may be in front of us or the unknown just around the corner.

I was introduced to Dr. Heidi Frere, who hails from Johannesburg, South Africa. She owns and runs the practice, Best You Medical Wellness, and Aesthetics, and her true passion is in the integration of Aesthetic, Lifestyle, and Functional Medicine. Dr. Frere has done advanced work in Aesthetic, Integrative and Functional Medicine.

I will share two insights she shared with me in a recent interview on how to take care of yourself, your health, and, therefore, ultimately the care of your loved ones and those that work in your organization.

A Plan for Your Health

She said people want an improved quality of life and are prepared to invest in their health to get it! People want to reverse the signs of aging; they want the return of optimal cognitive functioning, and they want youthful energy levels, especially now during the Covid-19 global pandemic.

She continued; it is my responsibility and role to enhance peoples' health and help them to do better at this thing called life. Meeting them where they are at and inspire them to move forward and make progress. This is a meeting where we gather data, diagnose, and make plans for our patients. They are often simple changes to make. People know them, but they are not doing them. One small change can be so impactful, and people are often amazed.

What Can We Learn from This?

Dr. Frere raised some excellent points above; my question is, "What regular diagnosis are you receiving for your health and wellness condition?

Like all of us, we might do better if we had a "health accountability partner," encouraging you to "walk a little more," "go to the gym, "or "check your vitals." The point is "What simple changes are you making now to improve your current health condition? Also, how are you measuring and tracking it?

How to Deal with Stress

Then she discussed the issue of stress and how to deal with it practically using these three points:

Connect to Community

She related that Community is important for mental health and wellbeing. Talking to friends, family, and colleagues can help to build strong relationships and develop trust and reduce the feeling of isolation.

Gain Others Perspective

Stress can cloud your ability to see solutions that might seem obvious to an outsider. Talking to someone – whether it is a friend, colleague, or trained professional – may help you gain perspective and positively impact problems and stress levels.

Find your Triggers

Talking to friends and colleagues will also help you to understand how other people react in the same situation. Otherwise, you only have your own perspective and you end up more irritable, short-tempered, clench your jaws at night, grind your teeth, eat too much or too little, and make poor lifestyle choices.

Also, many of us do not spend enough time on this pillar of health called Relax, Calm, or Self-soothe. Using a meditative practice, abdominal breathing, and time in nature helps us to soothe.

She ended the discussion by saying Covid is an opportune time to sanitize and deep clean many aspects of a business or one's health or lifestyle. This pandemic has given us time to introspect and examine aspects of our lives – use it wisely.

What Can We Learn from This?

Ask yourself these questions: Whom do you talk with to get a different perspective on work, health, or other issues? More importantly, do you recognize and understand your "triggers" and know how to deal with them? How do you relax, calm, and self-soothe?

I had my own personal health scare when I was forty years old. At the time, I wrote a short book called Leadership ER: A health Check for you and Your Team.

Download it for free at www.KremplCommunications.com. It provides several health checklists for you and your team.

"Covid is an opportune time to sanitize and deep clean many aspects of a business or one's health or lifestyle. This pandemic has given us time to introspect and examine aspects of our lives – use it wisely."

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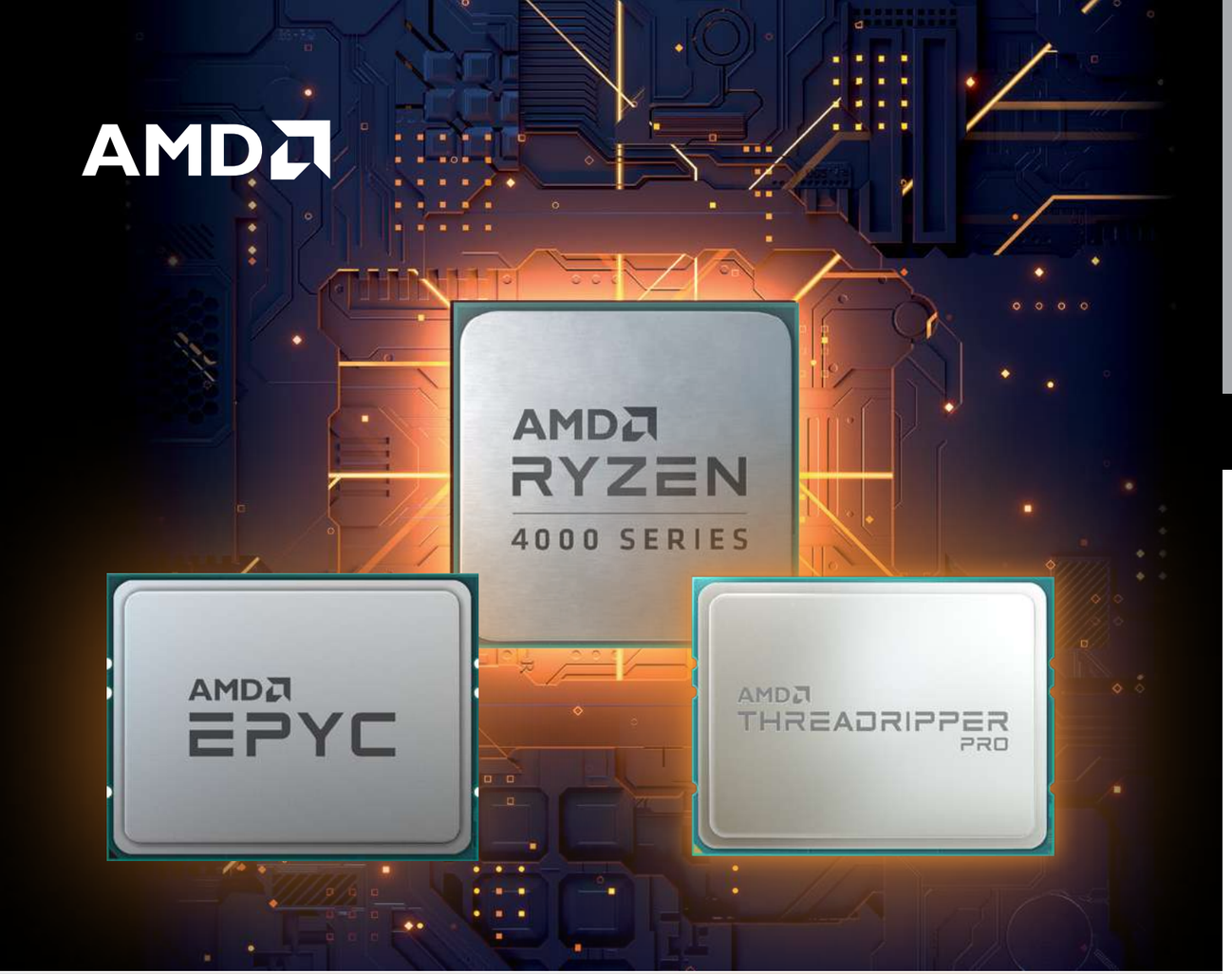

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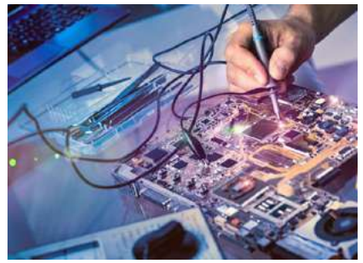

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A Chat with the SSIA Secretariat Team Member

The Story of Cindy's Career Journey

Cindy joined SSIA as the Executive Assistant in 2019. With more than 10 years of experience in secretarial, marketing and administration in MNC and SME, she now assists the Executive Director with the day-to-day operations of the Association.

Can you tell us about your career journey?

I was with Angliss Singapore doing International Marketing in the seafood division. I also covered secretarial support to the Senior GM. After a good number of years, the company underwent restructuring, and I ventured into the event management industry. In 2013, I chose to go back to work for my family business because I wanted to spend more time with my kids, at the same time, contribute to the company with my acquired skills and experience.

Photo taken when Cindy worked at Angliss Singapore

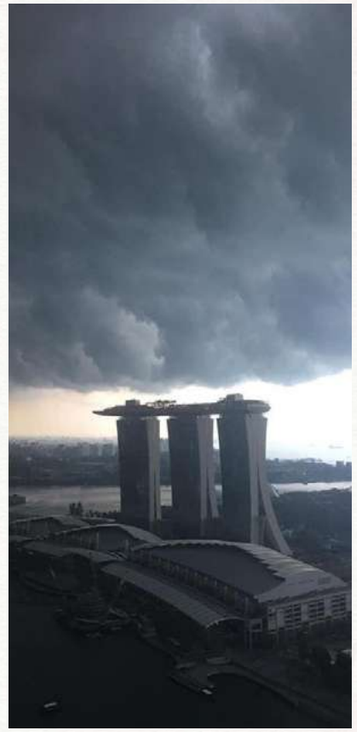
What are the similarities and differences between your previous roles and the role in a semiconductor trade association?

Working in SSIA is quite different from the experience in my previous roles. In SSIA, there are many opportunities to get exposure to various partners including companies and government agencies. I also have a deeper understanding of the development and significance of the semiconductor industry in Singapore and the region. It has been great learning for me! I am glad to collaborate with different stakeholders to accomplish our goals.

How do you know about SSIA and why do you choose to join the Association?

I did not know much about SSIA till I chanced upon the job opening in the career portal. After my first interview with Wee Seng (our Executive Director) and Patsy (our HR Manager), I was intrigued by what the Association is driving towards and their efforts to help the industry. I am thankful to be part

Pictures that Cindy snapped randomly



of the Association in the past year offering support to companies to tide through the challenging times.

Tell us something about your role in SSIA?

As an Executive Assistant, I provide secretarial support to the Executive Director and assist him with the Association's day-to-day operations. I also take charge of the Finance, grants and audit matters. Recently, I have also helped with some marketing tasks for our industry-relevant courses.

What do you enjoy most about working in SSIA?

I enjoy being part of the SSIA team to help companies with their needs with our initiatives, especially amidst crisis like the COVID-19 pandemic. Besides, I am impressed by the Association's vision in recruiting and growing young talents for the industry. I know it is challenging, but we have many great plans next year to drive this initiative further.

How do you see the changes in your work after the COVID-19 crisis? Any memorable experience to share?

One significant improvement is we have saved many trees by going paperless! With the power of technology making things possible, we can digitalize everything and work anywhere efficiently with the various applications available. Though our team is now working from home, we remain connected by hosting weekly meetings and frequent check-ins with each other via video or phone conversations. Of course, I am looking forward to our physical team gathering soon!

Let's talk about something personal. Can you share with us a bit more about your hobby?

I love reading and used to hog in Borders (the bookstore). My favourite readings are real-life stories and chic literature that help me unwind. I also love taking pictures! From anything pretty to everything unusual, food to scenery, family and friends, I love to capture moments for memories.

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