Company Profile

2

2.1 An Introduction to TSMC

Established in 1987 and headquartered in Hsinchu Science Park, Taiwan, TSMC pioneered the pure-play foundry business model by focusing solely on manufacturing customers' products. By choosing not to design, manufacture or market any semiconductor products under its own name, the Company ensures that it never competes directly with its customers. Today, TSMC is the world's largest semiconductor foundry, manufacturing 10,436 different products using 261 distinct technologies for 481 different customers in 2018.

With a large and diverse global customer base, TSMC-manufactured semiconductors cover a wide range of applications in the computer, communications, consumer, industrial and standard segments and are used in a variety of end markets including mobile devices, high performance computing, automotive electronics and the Internet of Things (IoT). Strong diversification helps to smooth fluctuations in demand, which, in turn, helps the Company maintain higher levels of capacity utilization and profitability.

Annual capacity of the manufacturing facilities managed by TSMC and its subsidiaries exceeded 12 million 12-inch equivalent wafers in 2018. These facilities include three 12-inch wafer GIGAFAB® fabs, four 8-inch wafer fabs, and one 6-inch wafer fab – all in Taiwan – as well as one 12-inch wafer fab at a wholly owned subsidiary, TSMC Nanjing Company Limited, and two 8-inch wafer fabs at wholly owned subsidiaries, WaferTech in the United States and TSMC China Company Limited.

TSMC provides customer service, account management and engineering services through offices in North America, Europe, Japan, China, and South Korea. At the end of 2018, the Company and its subsidiaries employed more than 48,000 people.

The Company is listed on the Taiwan Stock Exchange (TWSE) under ticker number 2330, and its American Depositary Shares (ADSs) are traded on the New York Stock Exchange (NYSE) under the symbol TSM.

2.2 Market/Business Summary

2.2.1 TSMC Achievements

In 2018, TSMC maintained its leading position in the foundry segment of the global semiconductor industry, with an estimated market share of 56%, despite intense competition from both established players and relatively new entrants to the business.

Leadership in advanced process technologies is a key factor in the Company's strong market position. In 2018, 63% of TSMC's wafer revenue came from advanced manufacturing processes (defined as geometries of 28nm and smaller), up from 58% in 2017.

TSMC offers the foundry segment's broadest technology portfolio and continues to invest in advanced and specialty technologies to provide customers more added value. This is a differentiating competitive advantage for TSMC.

In 2018, the Company either developed or introduced the following:

Logic Technology

- 5nm FinFET (fin field-effect transistor) technology development continued to progress smoothly, and volume production of this leading-edge technology is planned for the first half of 2020. Compared to 7nm FinFET technology, 5nm FinFET offers over 15% speed improvement or 30% power reduction. In addition, 5nm FinFET technology is optimized upfront for both mobile applications and high performance computing devices.
- 7nm FinFET Plus (N7+) technology entered risk production in August 2018 as planned as TSMC received customer product tape-outs and completed product verification. N7+ is the first commercially available EUV-enabled foundry process technology in the world. Compared to 7nm FinFET technology, N7+ offers approximately 20% greater logic density and 10% power reduction.

- 7nm FinFET technology entered volume production in the second quarter of 2018. Customer adoption was strong and with more than 40 product tape-outs received by the end of 2018. With its superior value proposition, these tape-outs came from a wide spectrum of applications including mobile devices, game consoles, artificial intelligence, central processing units, graphic processing units and networking devices. Compared to 16nm FinFET technology, 7nm FinFET offers approximately a 35% speed improvement or a 65% power reduction, as well as more than three times the logic density. In addition, 7nm FinFET technology can be optimized for mobile applications and high performance computing devices. 7nm FinFET technology also set a new Company record in terms of production ramp-up speed.
- 12nm FinFET Compact technology (12FFC), which entered volume production in 2017, is TSMC's latest family offering following 16nm FinFET Plus technology (16FF+) and 16nm FinFET Compact technology (16FFC). 12FFC drives die size and power consumption to the best levels of the foundry's 16/14nm technologies. 16FF+, which first entered volume production in 2015, is aimed at customers in high performance market segments, including mobile, server, graphics, and cryptocurrency. The cost-effective 16FFC, in volume production since 2016, can maximize die cost scaling by incorporating optical shrink and process simplification at the same time. Both 16FFC and 12FFC can satisfy customer needs in mainstream and ultra-low-power (ULP) market segments, including low-end to mid-range mobile phones, consumer electronics, digital TVs and the IoT. With innovative standard cell structures, 12FFC can also be used in more advanced applications. So far, 16FF+/16FFC/12FFC have received a total of more than 300 product tape-outs, most of which have been first-time silicon successes.
- 22nm ultra-low leakage (22ULL) technology development was completed and entered risk production in fourth quarter of 2018 as planned to support IoT and wearable devices applications. New ULL device and ULL SRAM (static random access memory) can provide lower power consumption compared to 40ULP and 55ULP solutions.
- 22nm ultra-low power (22ULP) technology was developed based on TSMC's industry-leading 28nm technology and completed all process qualifications in the fourth quarter of 2018. Compared to 28nm high performance compact (28HPC) technology, 22ULP provides 10% area reduction with more than 30% speed gain or more than 30% power reduction for applications including image processing, digital TVs, set-top boxes, smartphones and consumer products.
- 28nm high performance compact plus (28HPC+) technology had accumulated more than 230 product tape-outs as of the end of 2018. 28HPC+ technology provides further performance enhancement or power reduction in mainstream smartphone, digital TV, storage, audio and SoC (System-on-Chip) applications. Compared to 28HPC technology, 28HPC+ technology improves device performance by 15% or reduces leakage by 50%.
- 40nm ULP technologies received over 30 product tape-outs in 2018. These technologies target the IoT and wearable devices applications, such as wireless connectivity, application processors and sensor hub applications. In addition, TSMC uses its leading 40nm ULP low Vdd (Low Operating Voltage) technology to produce the world's lowest energy consumption solutions for IoT devices and for wearable connected devices. Still under development are new enhanced analog devices that will enrich the 40ULP platform to support customers for more analog design needs in the future.
- 55nm ultra-low power (55ULP) technology volume production continued and accumulated more than 60 customer tape-outs as of 2018. Compared to 55nm Low Power (55LP) process, 55ULP can significantly increase battery life for IoT applications. In addition, it integrates RF (radio frequency) and eFlash (embedded flash) to simplify customers' SoC designs.

Specialty Technology

- 16FF+ technology began production for customer applications in the automotive industry in 2017. 16FFC Foundation IPs (intellectual properties) passed the Automotive Electronic Council AEC-Q100 Grade-1 qualification and were certified for functional safety standard ISO 26262 ASIL-B. In addition, TSMC 9000A was introduced for automotive IP management to complete the automotive ecosystem with third-party IP vendors. TSMC continues to develop 7nm automotive foundation IPs, and plans to have them qualified for AEC-Q100 Grade-2 by the second half of 2019.
- 16FFC RF led the foundry to start volume production of the fifth generation (5G) mobile network chips for customers in the first half of 2018. This technology has been extended to the next generation Wireless Local Area Network (WLAN 802.11ax) and Millimeter Wave (mmWave) applications, as well as to wireless connectivity applications such as smartphones using the 5G mobile network. As TSMC continues to advance 16FFC RF technology, this more cost-effective technology will be used in more applications such as radar and AR/VR, to reduce chip power consumption and die size.
- 22nm RF (22ULP/ULL RF) technology extended its support for ultra-low leakage devices, magnetic random access memory (MRAM), and resistive random access memory (RRAM) in 2018, in addition to high f_T (cut-off frequency) devices. This further supports chip development for 5G mmWave mobile communication and IoT applications.
- 28nm RF (28HPC+ RF) technology delivered the foundry's first RF process design kit (PDK) in 2018, providing support for 110GHz mmWave and 150°C automotive grade and so on for 5G mmWave RF and automotive radar product designs.
- 40nm ULP eFlash began volume production in 2016 for applications such as wireless MCU (Microcontroller Unit), IoT devices, wearable devices, and high performance MCU. In 2018, this technology passed AEC-Q100 automotive Grade-1 qualification in 2018 for both high-speed and low-power IPs.
- 40nm ULP embedded resistive random access memory (RRAM) technology, which began risk production at the end of 2017, completed consumer grade qualification test for 10,000 cycles of endurance in 2018. This technology is fully CMOS (Complementary Metal Oxide Semiconductor) logic compatible for PDK and IP re-use for applications including wireless MCU, IoT and wearable devices.
- 22nm ULL magnetic random access memory (MRAM) technology progressed well, demonstrated reflow capability and passed JEDEC 168 hours high-temperature operating life (HTOL) reliability validation at the end of 2018. Through IP customization, MRAMs can serve various applications, such as artificial intelligence and eFlash replacement for MCU.
- 12-inch 0.13μm BCD (Bipolar-CMOS-DMOS) Plus technology, which began production in the second half of 2017, saw remarkable wafer shipment growth in 2018. Compared to the prior 0.13μm BCD technology, this technology provides superior performance competitiveness and cost effectiveness for power management applications in high-end smartphones.
- 0.18μm BCD third generation, which started volume production in the second half of 2017, passed AEC-Q100 Grade-1 qualification in 2018 and is expected to pass AEC-Q100 Grade-0 qualification in 2019. This technology provides superior cost competitiveness compared to the second generation BCD.
- GaN on silicon technology, which began volume production in 2017, saw remarkable wafer shipment growth in 2018. TSMC continues to develop new GaN technologies, including GaN IC with driver integration, automotive grade GaN, and GaN RF power amplifier, to support customers' diverse system chip designs for various market applications.
- Setting the trend for the smartphone organic light emitting diode (OLED) panel development, TSMC launched a world-leading 40nm high-voltage (HV) technology. This technology provides world-leading logic and SRAM density for customers to design more competitive OLED drivers.
- As near infrared (NIR) technology is critical to machine vision, TSMC focused on improving its CMOS image sensor (CIS) NIR QE (quantum efficiency) to >35%. This breakthrough greatly reduces total system power consumption and increases sensor sensitivity, enabling more innovative applications of machine vision in smartphones, automotive, industrial, and home devices.
- TSMC successfully delivered the world's first CMOS-MEMS (Micro-electromechanical Systems) monolithic capacitive barometer, which features sensitivity to altitude changes as small as 5 cm and fits in a package of slightly less than 1 mm^2, for various system applications, including personal activity tracking and indoor navigation.

Advanced Packaging Technology

- InFO-PoP (Integrated Fan-Out Package-on-Package) technology, which integrates 7nm SoC (System-on-Chip) and DRAM (dynamic random access memory) for advanced mobile device applications, began volume production in the second quarter of 2018.
- CoWoS® (Chip on Wafer on Substrate) technology that heterogeneously integrates a 7nm SoC and the second generation high bandwidth memory (HBM2) successfully completed qualification and began production in the second half of 2018 for high performance computing applications.
- In addition to CoWoS®, InFO-oS (Integrated Fan-Out on Substrate) technology integrating multiple 16nm SoC chips began production in the first quarter of 2018.
- Fine pitch Cu bump for flip chip packaging on 7nm silicon started volume production for both advanced mobile device and high performance computing applications in the first quarter of 2018. Moreover, 16nm silicon in WLCSP (wafer level chip scale packaging) technologies started volume production in the fourth quarter of 2018 for IoT applications, in addition to the existing ≥28nm products for high-end smartphones.

2.2.2 Market Overview

TSMC estimates that the worldwide semiconductor market excluding memory in 2018 was US$334 billion in revenue, representing a healthy 8% year-over-year growth, after a strong year in 2017. In the foundry segment of the semiconductor industry, total revenue was US$61 billion in 2018, up 6% year-over-year and slightly below the 8% growth achieved in 2017.

2.2.3 Industry Outlook, Opportunities and Threats

Industry Demand and Supply Outlook

Back-to-back years of growth in the foundry segment were driven mainly by healthy market demand. For 2019, TSMC forecasts the total semiconductor market excluding memory growth to be flat or slightly down. Over the longer term, however, fueled by increasing semiconductor content in electronic devices, continuing market share gains by fabless companies, gradual increases in integrated device manufacturer (IDM) outsourcing, and expanding in-house application-specific integrated circuits (ASIC) from systems companies, the Company expects foundry segment revenue to outpace the mid-single-digit compound annual growth rate projected for the overall semiconductor market excluding memory from 2017 through 2022.

As an upstream supplier in the semiconductor supply chain, the foundry segment is tightly correlated with the market health of the three "C" sectors, communications, computers and consumer electronics.

- **Communications**

For the communications sector, smartphone unit shipments were down 4% in 2018, the first decline in smartphone history, due to the high penetration in several developed countries and China, as well as to prolonged replacement cycle. TSMC projects the low-single-digit decline to continue in the smartphone market in 2019. Still, the continuing transition to 4G/LTE, LTE-Advanced and 5G NR (new radio), together with improved performance, longer battery life, biosensors and more AI features will all continue to propel smartphone sales. Plus, the increasing popularity of low-end smartphones in emerging countries will also drive growth in this sector.

Low-power IC is an essential requirement among handset manufacturers, and SoC design, in which TSMC is already the leader, is the preferred solution due to its optimized cost, power and form factor (device footprint and thickness) potential. The migration to advanced process technologies will continue to accelerate, spurred by the appetite for higher performance to run AI applications, various complex software routines and higher resolution video.

- **Computer**

After a 3% decline in 2017, the computer sector's overall unit shipment fell marginally by 1% year-over-year in 2018. The decline was due to personal computer's prolonged replacement cycle and consumer usage moving towards mobile computing, largely offset by business PC demand and positive growth in server units.

The computer sector is projected to continue its low-single-digit unit decline in 2019. However, several factors are expected to help buoy demand in this sector, including increasing form varieties, the business adoption of new operating systems, and consumer replacements of aging PCs; as well as growing high performance applications such as gaming PC, machine learning and blockchain.

All these require lower power and higher performance CPU, GPU, HDD Controller, and ASICs, which will drive the computer sector towards richer silicon content and more advanced process technologies.

- **Consumer**

The consumer sector's unit shipments fell 4% in 2018. TVs and TV game consoles showed positive growth; set-top boxes declined due to worldwide economic uncertainties, while the rest of the sector – MP3 players, digital cameras and hand-held game consoles – continued to be cannibalized by smartphones.

A continued drop in consumer electronics is expected in 2019. Certain sub-segments such as 4K (UHD) TVs and set-top boxes should achieve positive growth within the sector, while next generation 8K TVs will also be launched. In addition, AI functions such as picture quality improvement and voice control will be increasingly incorporated in TVs. With its broad array of advanced technology offerings, TSMC expects to take advantage of these market trends.

Supply Chain

The electronics industry features a long and complex supply chain, the elements of which are correlated and highly interdependent. At the upstream manufacturing level, IC vendors need to have sufficient and flexible supply deliveries to handle fluctuating demand dynamics. Foundry vendors play an important role to ensure the health and effectiveness of the supply chain. As a leader in the foundry segment, TSMC provides advanced technologies and large-scale capacity to complement the innovations created along the downstream chain.

2.2.4 TSMC Position, Differentiation and Strategy

Position

TSMC is the worldwide semiconductor foundry leader for both advanced and specialty process technologies, commanding a 56% market share in 2018. Net revenue by geography, based mainly on the country in which customers are headquartered, was: 62% from North America; 9% from the Asia Pacific region, excluding China and Japan; 17% from China; 7% from Europe, the Middle East and Africa; and 5% from Japan. Net revenue by end-product application was: 14% from the computer sector, 56% from communications, 7% from consumer products, and 23% from industrial and standard products.

Differentiation

TSMC's leadership position is based on three defining competitive strengths and a business strategy rooted in the Company's heritage. The Company distinguishes itself from the competition through its technology leadership, manufacturing excellence and customer trust.

As a technology leader, TSMC is consistently first among dedicated foundries to provide next-generation, leading-edge technologies. The Company has also established its leadership on more mature technology nodes by applying the lessons learned on leading-edge technology development to enrich its specialty technologies. Beyond process technology, TSMC has established frontend and backend integration capabilities that create the optimum power/performance/area "sweet spot" and result in faster time-to-production.

TSMC, well known for its industry-leading manufacturing management capabilities, extends that leadership through its Open Innovation Platform® and Grand Alliance initiatives. The TSMC Open Innovation Platform® initiative quickens the pace of innovation in the semiconductor design community and among its ecosystem partners, as well as the Company's own IP, design implementation and design for manufacturing capabilities, process technology and backend services. A key element is a set of ecosystem interfaces and collaborative components initiated and supported by TSMC that more efficiently empower innovation throughout the supply chain and drive the creation and sharing of new revenue and profits. The TSMC Grand Alliance is one of the most powerful forces for innovation in the semiconductor industry, bringing together customers, electronic design automation (EDA) partners, IP partners, and key equipment and material suppliers at a new, higher level of collaboration. Its objective is to help customers, alliance members and TSMC win business and increase competitiveness.

The foundation for customer trust is a commitment TSMC made when it opened for business in 1987 to never compete with its customers. As a result, TSMC has never owned or marketed a single semiconductor product, but instead has focused all of its resources on becoming the trusted foundry for its customers.

Strategy

TSMC is confident that its differentiating strengths will enable it to prosper from the foundry segment's many attractive growth opportunities. In light of the rapid growth in four major markets, namely mobile, high performance computing, automotive electronics, and the Internet of Things, and the fact that focus of customer demand is shifting from process-technology-centric to product-application-centric, TSMC has constructed four different technology platforms to provide customers with the most comprehensive and competitive logic process technologies, specialty technologies, IPs, and packaging and testing technologies to shorten customers' time-to-design and time-to-market.

Mobile platform: TSMC offers leading process technologies such as 5nm FinFET, 7nm FinFET Plus, 7nm FinFET, 10nm FinFET, 16nm FinFET Plus (16FF+), and 20nm SoC logic process technologies, as well as comprehensive IPs for premium product applications to further enhance chip performance, reduce power consumption, and decrease chip size. From low-end to high-end product applications, TSMC offers leading process technologies such as 12nm FinFET Compact technology (12FFC), 16nm FinFET Compact technology (16FFC), 28nm high performance compact (28HPC), 28nm high performance mobile compact plus (28HPC+), and 22nm ultra-low power (22ULP) logic process technologies, in addition to comprehensive IPs, to satisfy customer needs for high performance and low-power chips. Furthermore, for premium, high-end, mid-end, and low-end product applications, TSMC also offers the most competitive, leading-edge specialty technologies, including RF, embedded flash memory, emerging memory technologies, power management, sensors, and display chips as well as advanced packaging technologies such as the leading Integrated Fan-Out (InFO) technology.

High performance computing platform: TSMC provides customers with leading process technologies such as 5nm FinFET, 7nm FinFET Plus, 7nm FinFET and 16nm FinFET, as well as comprehensive IPs including high-speed interconnect IPs, to meet customers' high performance computing and communication requirements. TSMC also offers multiple advanced packaging technologies such as CoWoS®, InFO, and 3D IC technologies to enable homogeneous and heterogeneous chip integration to meet customers' performance, power, and system footprint requirements. TSMC will continue to optimize its high performance computing platform offerings to help customers capture market growth driven by data explosion and application innovation.

Automotive electronics platform: TSMC offers industry's leading automotive technology to support the three megatrends – safety, connectivity and green – in the automotive industry. TSMC is also the industry leader in providing a robust automotive IP ecosystem, which covers 16nm FinFET first and extends to 7nm FinFET, for advanced driver-assistance systems (ADAS), the most computation demanding system in the automotive industry. In addition to the advanced logic technology platform, TSMC offers broad and competitive specialty technologies, including 40nm embedded flash memory, 28nm and 22nm mmWave RF, high sensitivity CMOS Image/LiDAR sensors, and power management IC technologies. All these automotive technologies are applied to TSMC's automotive process qualification standards based on AEC-Q100 standards.

Internet of Things platform: TSMC provides industry's leading and comprehensive ultra-low power (ULP) technology platform to support innovations for IoT and wearable applications. TSMC's industry-leading offerings, including 55nm ULP, 40nm ULP, 28nm ULP, 22nm ULP/Ultra-low leakage (ULL), have been widely adopted by various IoT and wearable applications. TSMC also extends its low Vdd (Low Operating Voltage) offerings for extreme low-power applications. To support the ever-increasing demand in IoT edge computing and wireless connectivity, TSMC also offers the most competitive and comprehensive leading-edge specialty technologies in RF, embedded flash memory, emerging memory, sensors, and display chips, as well as multiple advanced packaging technologies including leading InFO technology.

TSMC continually strengthens its core competitiveness and deploys both short-term and long-term technology and business development plans, and assists customers in taking on the challenges of short product cycles and intense competition in the electronic products market to meet ROI and growth objectives.

- **Short-Term Semiconductor Business Development Plan**

1. Substantially ramp up the business and sustain advanced technology market share with continually increased capacity and R&D investments.
2. Maintain mainstream technology market share by expanding business to new customers and market segments with off-the-shelf technologies.
3. Continue to enhance the competitive advantages of TSMC's platforms in mobile, high performance computing, automotive electronics, and IoT design ecosystems so as to expand TSMC's dedicated foundry services in these product applications.
4. Further expand TSMC's business and service infrastructure into emerging and developing markets.

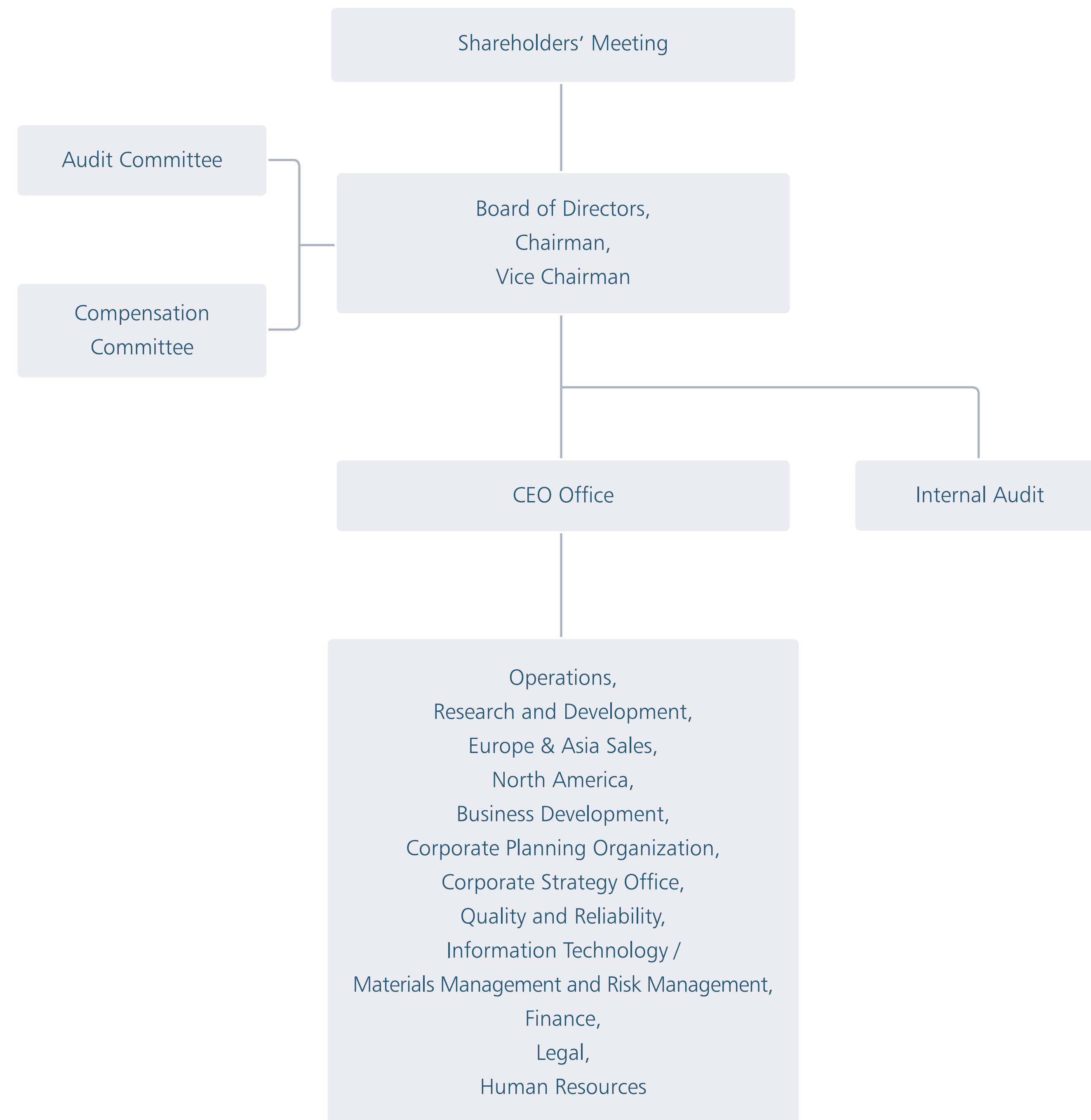
- **Long-Term Semiconductor Business Development Plan**

1. Continue developing leading-edge technologies at a pace consistent with Moore's Law.
2. Broaden specialty business contributions by further developing derivative technologies.
3. Provide more integrated services, covering system-level integration design, design technology definition, design tool preparation, wafer processing, and backend services, all of which deliver more value to customers through optimized solutions.

2.3 Organization

2.3.1 Organization Chart

As of 02/28/2019



2.3.2 Major Corporate Functions

Operations

- Operations including all fabs in Taiwan and overseas, and manufacturing technology development; product development, specialty technology development, advanced packaging technology development, production and service integrations, and support and service for customers in Asia, Europe, and North America

Research and Development

- Advanced technology development, exploratory research, as well as design and technology platform development

Europe & Asia Sales

- Sales, market development, technical marketing, field technical support and service, and business operations for customers in Europe and Asia, including China, Japan, Korea and Taiwan

North America

- Sales, market development, field technical solutions and business operations for customers in North America

Business Development

- Business development identifies market directions and new applications that shape the technology roadmap and portfolios for the Company. It also provides key support in strengthening customer relationship along with the company branding management

Corporate Planning Organization

- Planning for production and demand; the integration of business processes, corporate pricing, market analysis and forecasting

Corporate Strategy Office

- Corporate strategy formation and implementation

Quality and Reliability

- Assurance of the quality and reliability of the Company's products via resolving reliability issues at new technology development stage, improving and managing product quality at production stage, providing solutions to resolve customers' quality related issues and providing services for advanced materials and failure analysis

Information Technology

- Integration of the Company's technology and business IT systems; infrastructure development, communication services and assurance of IT security and service quality, enabling organizations to apply Big Data and Machine Learning to improve the Company's productivity and accelerate R&D delivery

Materials Management and Risk Management

- Procurement, warehousing, import and export, and logistics support; also environmental protection, industrial safety, occupational health, and risk management

Internal Audit

- Inspection and review of TSMC's internal control system, its adequacy in design and effectiveness in operation with independent risk assessment to ensure compliance with TSMC's policies and procedures as well as with external regulations

Finance and Spokesperson

- Corporate finance, accounting, operation resources planning and corporate communications; with the head of the organization also serving as Company spokesperson

Legal

- Corporate legal affairs including regulatory compliances, commercial transactions, patents and management of other intellectual properties, litigation, etc.

Human Resources

- Personnel, management and organizational development, as well as proprietary information protection and physical security management

2.4 Board Members

2.4.1 Information Regarding Board Members

As of 02/28/2019

Title/Name (Note 1)	Gender	Nationality or Place of registration	Date Elected	Term Expires	Date First Elected	Shareholding When Elected		Current Shareholding		Spouse & Minor Shareholding		Selected Education, Past Positions & Current Positions at Non-profit Organizations	Selected Current Positions at TSMC and Other Companies
						Shares	%	Shares	%	Shares	%		
Chairman Mark Liu (Note 2)	Male	U.S.	06/05/2018	06/04/2021	06/08/2017	12,913,114	0.05%	12,913,114	0.05%	-	-	Bachelor Degree in Electrical Engineering, National Taiwan University Master Degree and Ph.D. in Electrical Engineering & Computer Science, University of California, Berkeley Former President, Worldwide Semiconductor Manufacturing Corp. Former Senior Vice President, Advanced Technology Business, TSMC Former Senior Vice President, Operations, TSMC Former Executive Vice President and Co-Chief Operating Officer, TSMC Former President and Co-CEO, TSMC	None
Vice Chairman C.C. Wei (Note 3)	Male	R.O.C.	06/05/2018	06/04/2021	06/08/2017	7,179,207	0.03%	7,179,207	0.03%	261	0.00%	Bachelor and Master Degrees in Electrical Engineering, National Chiao Tung University Ph.D. in Electrical Engineering, Yale University Former Senior Vice President, Chartered Semiconductor Manufacturing Ltd. Former Senior Vice President, Mainstream Technology Business, TSMC Former Senior Vice President, Business Development, TSMC Former Executive Vice President and Co-Chief Operating Officer, TSMC Former President and Co-CEO, TSMC Chairman, Taiwan Semiconductor Industry Association (TSIA) Director, TSMC Charity Foundation	CEO, TSMC
Director F.C. Tseng (Note 4)	Male	R.O.C.	06/05/2018	06/04/2021	05/13/1997	34,472,675	0.13%	34,472,675	0.13%	132,855	0.00%	Bachelor Degree in Electrical Engineering, National Chengkung University Master Degree in Electrical Engineering, National Chiao Tung University Ph.D. in Electrical Engineering, National Chengkung University Honorary Ph.D., National Chiao Tung University Honorary Ph.D., National Tsing Hua University Former President, Vanguard International Semiconductor Corp. Former President, TSMC Former Deputy CEO, TSMC Former Vice Chairman, TSMC Former Director, National Culture and Arts Foundation, R.O.C. Chairman, TSMC Education and Culture Foundation Director, Cloud Gate Culture and Arts Foundation	Chairman of: - TSMC China Company Ltd. (a nonpublic company) - Global UniChip Corp. Vice Chairman, Vanguard International Semiconductor Corp. Independent Director, Chairman of Audit Committee & Compensation Committee member, Acer Inc.
Director National Development Fund, Executive Yuan (Note 5)			06/05/2018	06/04/2021	12/10/1986	1,653,709,980	6.38%	1,653,709,980	6.38%	-	-		
Representative: Mei-ling Chen	Female	R.O.C.			11/07/2017 (Note 6)	-	-	-	-	-	-	LL.B., National Chengchi University LL.M., National Taiwan University LL.D., National Chengchi University Former Director General, Department of Legal Affairs, Ministry of Justice, R.O.C. Former Chairperson of Legal Affairs Committee & concurrently Chairperson of Petitions and Appeals Committee, Executive Yuan, R.O.C. Former Deputy Secretary-General, Executive Yuan, R.O.C. Former Secretary-General, Tainan City Government, R.O.C. Former Secretary-General, Executive Yuan, R.O.C. Former Associate Professor, Department of Law, Chinese Culture University Minister without Portfolio, Executive Yuan & concurrently Minister, National Development Council, R.O.C.	None
Independent Director Sir Peter L. Bonfield	Male	UK	06/05/2018	06/04/2021	05/07/2002	-	-	-	-	-	-	Bachelor Degree in Engineering, Loughborough University Honours Degree in Engineering, Loughborough University Former Chairman and CEO, ICL Plc Former CEO and Chairman of the Executive Committee, British Telecommunications Plc Former Vice President, the British Quality Foundation Former Director, Mentor Graphics Corp., U.S. Former Director, Sony Corp., Japan Former Director, L.M. Ericsson, Sweden Former Chairman, GlobalLogic Inc., U.S. (a nonpublic company) Former Senior Advisor to Hampton Group, London Fellow of the Royal Academy of Engineering Chair of Council and Senior Pro-Chancellor, Loughborough University, UK Board Member, EastWest Institute, New York	Chairman, NXP Semiconductors N.V., the Netherlands Member, The Longreach Group Advisory Board, HK Board Mentor, CMi, UK Senior Advisor to Alix Partners, London

(Continued)

Title/Name (Note 1)	Gender	Nationality or Place of registration	Date Elected	Term Expires	Date First Elected	Shareholding When Elected		Current Shareholding		Spouse & Minor Shareholding		Selected Education, Past Positions & Current Positions at Non-profit Organizations	Selected Current Positions at TSMC and Other Companies
						Shares	%	Shares	%	Shares	%		
Independent Director Stan Shih	Male	R.O.C.	06/05/2018	06/04/2021	04/14/2000	1,480,286	0.01%	1,480,286	0.01%	16,116	0.00%	BSEE & MSEE, National Chiao Tung University Honorary EE Ph.D., National Chiao Tung University Honorary Doctor of Technology, The Hong Kong Polytechnic University Honorary Fellowship, University of Wales, Cardiff, UK Honorary Doctor of International Law, Thunderbird, American Graduate School of International Management, U.S. Co-Founder, Chairman Emeritus, Acer Group Former Chairman & CEO, Acer Group Former Director, Qisda Corp. Former Director, Wistron Corp. Former Chairman, National Culture and Arts Foundation, R.O.C. Director, Public Television Service Foundation, R.O.C. Council member of Asian Corporate Governance Associate (ACGA) Chairman, Stans Foundation Chairman, Cloud Gate Culture and Arts Foundation	Director & Honorary Chairman, Acer Inc. Director of: - Egis Technology Inc. - Nan Shan Life Insurance Co., Ltd. (a non-listed company) - Chinese Television System Inc. (a non-listed company) - Digitimes Inc. (a nonpublic company)
Independent Director Kok-Choo Chen	Female	R.O.C.	06/05/2018	06/04/2021	06/09/2011	-	-	-	-	5,120	0.00%	Inns of Court School of Law, England Barrister-at-law, England Advocate & Solicitor, Singapore Attorney-at-law, California, U.S. Lawyer, Tan, Rajah & Cheah, Singapore, 1969-1970 Lawyer, Sullivan & Cromwell, New York, U.S., 1971-1974 Lawyer, Heller, Erhman, White & McAuliffe, San Francisco, California, U.S., 1974-1975 Partner, Ding & Ding Law Offices, Taiwan, 1975-1988 Partner, Chen & Associates Law Offices, Taiwan, 1988-1992 Vice-President, Echo Publishing, Taiwan, 1992-1995 President, National Culture and Arts Foundation, R.O.C., 1995-1997 Senior Vice-President & General Counsel, TSMC, 1997-2001 Founder & Executive Director of Taipei Story House, 2003-2015 Advisor, Executive Yuan, R.O.C., 2009-2016 Director, National Culture and Arts Foundation, R.O.C., 2011-2016 Chairman, National Performing Arts Center, 2014-2017 Lecturer, Nanyang University, Singapore, 1970-1971 Associate Professor, Soochow University, 1981-1998 Chair Professor, National Tsing Hua University, 1999-2002 Professor, National Chengchi University, 2001-2004 Professor, Soochow University, 2001-2008 Founder and Executive Director, Museum207 (located in Taipei) Director, Republic of China Female Cancer Foundation	None
Independent Director Michael R. Splinter	Male	U.S.	06/05/2018	06/04/2021	06/09/2015	-	-	-	-	-	-	Bachelor and Master Degrees in Electrical Engineering, University of Wisconsin Madison Honorary Ph. D in Engineering, University of Wisconsin Madison Former Executive Vice President of Technology and Manufacturing group, Intel Corp. Former Executive Vice President of Sales and Marketing, Intel Corp. Former CEO, Applied Materials, Inc. Former Chairman, Applied Materials, Inc. Former Director, The NASDAQ OMX Group, Inc. Former Director, Silicon Valley Leadership Group Former Director, Semiconductor Equipment and Materials International (SEMI) Director, University of Wisconsin Foundation Chairman of the Board, US-Taiwan Business Council	Chairman of the Board, NASDAQ, Inc. Director of: - Meyer Burger Technology Ltd., Switzerland - Pica8, Inc., U.S. (a nonpublic company) - Gogoro Inc., Cayman Islands (a nonpublic company) General Partner, WISC Partners LP

Remarks:
1. No member of the Board of Directors held TSMC shares by nominee arrangement.
2. No member of the Board of Directors had a spouse or relative within two degrees of consanguinity serving as a manager or director at TSMC.

Note 1: Founder and former Chairman Dr. Morris Chang retired after the Annual Shareholders' Meeting on June 5, 2018. Mr. Thomas J. Engibous resigned as an Independent Director due to health reasons, effective January 1, 2019.
Note 2: Dr. Mark Liu was elected by the Board of Directors as Chairman on June 5, 2018.
Note 3: Dr. C.C. Wei was elected by the Board of Directors as Chief Executive Officer (CEO) and Vice Chairman on June 5, 2018.
Note 4: Former Vice Chairman Dr. F.C. Tseng is Director effective June 5, 2018.
Note 5: Major Shareholder of TSMC's Director that is an Institutional Shareholder.

Director that is an Institutional Shareholder of TSMC	Top 10 Shareholders
National Development Fund, Executive Yuan	Not Applicable

Major Institutional shareholders of National Development Fund: Not Applicable.
Note 6: Ms. Mei-ling Chen was appointed as the representative of National Development Fund on November 7, 2017.

2.4.2 Remuneration Paid to Directors (Note 1)

Unit: NT$

Title/Name	Director's Remuneration								(A+B+C+D) as a % of Net Income		Compensation Earned by a Director Who is an Employee of TSMC or of TSMC's Consolidated Entities								(A+B+C+D+E+F+G) as a % of Net Income (Note 8)		Compensation Paid to Directors from Non-consolidated Affiliates
	Base Compensation (A)		Severance Pay and Pensions (B) (Note 6)		Compensation to Directors (C)		Allowances (D) (Note 7)				Base Compensation, Bonuses, and Allowances (E) (Note 7)		Severance Pay and Pensions (F) (Note 6)		Employees' Profit Sharing Bonus (G)						
															From TSMC		From All Consolidated Entities				
	From TSMC	From All Consolidated Entities	From TSMC	From All Consolidated Entities	From TSMC	From All Consolidated Entities	From TSMC	From All Consolidated Entities	From TSMC	From All Consolidated Entities	From TSMC	From All Consolidated Entities	From TSMC	From All Consolidated Entities	Cash	Stock (Fair Market Value)	Cash	Stock (Fair Market Value)	From TSMC	From All Consolidated Entities	
Founder and Former Chairman Morris Chang (Note 2)	11,416,772	11,416,772	216,289	216,289	122,068,200	122,068,200	1,023,339	1,023,339	0.0384%	0.0384%	-	-	-	-	-	-	-	-	0.0384%	0.0384%	-
Chairman Mark Liu (Note 3)	8,173,235	8,173,235	144,710	144,710	140,520,500	140,520,500	1,104,330	1,104,330	0.0427%	0.0427%	45,328,784	45,328,784	92,520	92,520	41,152,680	-	41,152,680	-	0.0674%	0.0674%	-
Vice Chairman C.C. Wei (Note 4)	-	-	-	-	-	-	-	-	-	-	124,932,402	124,932,402	237,230	237,230	111,412,930	-	111,412,930	-	0.0674%	0.0674%	-
Director F.C. Tseng (Note 5)	4,881,362	4,881,362	121,950	121,950	9,600,000	9,600,000	1,738,731	1,738,731	0.0047%	0.0047%	-	-	-	-	-	-	-	-	0.0047%	0.0047%	6,776,858
Director National Development Fund, Executive Yuan Representative: Mei-ling Chen	-	-	-	-	9,600,000	9,600,000	-	-	0.0027%	0.0027%	-	-	-	-	-	-	-	-	0.0027%	0.0027%	-
Independent Director Sir Peter L. Bonfield	-	-	-	-	14,494,240	14,494,240	-	-	0.0041%	0.0041%	-	-	-	-	-	-	-	-	0.0041%	0.0041%	-
Independent Director Stan Shih	-	-	-	-	12,000,000	12,000,000	-	-	0.0034%	0.0034%	-	-	-	-	-	-	-	-	0.0034%	0.0034%	-
Independent Director Thomas J. Engibous	-	-	-	-	14,494,240	14,494,240	-	-	0.0041%	0.0041%	-	-	-	-	-	-	-	-	0.0041%	0.0041%	-
Independent Director Kok-Choo Chen	-	-	-	-	12,000,000	12,000,000	-	-	0.0034%	0.0034%	-	-	-	-	-	-	-	-	0.0034%	0.0034%	-
Independent Director Michael R. Splinter	-	-	-	-	14,494,240	14,494,240	-	-	0.0041%	0.0041%	-	-	-	-	-	-	-	-	0.0041%	0.0041%	-
Total	24,471,369	24,471,369	482,949	482,949	349,271,420	349,271,420	3,866,400	3,866,400	0.1077%	0.1077%	170,261,186	170,261,186	329,750	329,750	152,565,610	-	152,565,610	-	0.1997%	0.1997%	6,776,858

*Other than disclosure in the above table, Directors remunerations earned by providing services (e.g. providing consulting services as a non-employee) to TSMC and all consolidated entities in the 2018 financial statements: Advisor Fee to Dr. F.C. Tseng NT$9,347,601.

Note 1: Remuneration policies, standards/packages, procedures, the linkage to operating performance and future risk exposure: The base compensation for the Chairman, Vice-Chairman and directors are determined in accordance with the procedures set forth in TSMC's Articles of Incorporation. The Articles of Incorporation also provides that the compensation to directors shall be no more than 0.3% of annual profits and directors who also serve as executive officers of TSMC are not entitled to receive compensation to directors. The distribution of compensation to directors shall be made in accordance with TSMC's "Rules for Distribution of Compensation to Directors".

Note 2: Founder and Former Chairman Dr. Morris Chang retired after the Annual Shareholders' Meeting on June 5, 2018.

Note 3: Dr. Mark Liu was elected by the Board of Directors as Chairman on June 5, 2018. The data of "Director's Remuneration" is for the period from June 5 to December 31. The data of "Compensation Earned by a Director Who is an Employee of TSMC" is for the period from January 1 to June 4 when he served as President and Co-CEO of TSMC.

Note 4: Dr. C.C. Wei was elected by the Board of Directors as Chief Executive Officer (CEO) and Vice Chairman on June 5, 2018.

Note 5: Former Vice Chairman Dr. F.C. Tseng is Director effective June 5, 2018. The data of "Base Compensation (A)" and "Severance Pay and Pensions (B)" are for the period from January 1 to June 5 when he served as Vice Chairman.

Note 6: Pensions funded according to applicable law. In accordance with TSMC Procedure of Retirement, the pension payment to Dr. Morris Chang amounts to NT$76,171,995.

Note 7: The above-mentioned figures include expenses for Company cars and gasoline reimbursement, but do not include compensation paid to Company drivers (totaled NT$5,796,206).

Note 8: Total remuneration paid to the directors from TSMC and from all consolidated entities in 2017, including their employee compensation, both accounted for 0.2435% of 2017 net income.

2.5 Management Team

2.5.1 Information Regarding Management Team

As of 02/28/2019

Title Name (Note 1)	Gender	Nationality	On-board Date (Note 2)	Shareholding		Spouse & Minor		TSMC Shareholding by Nominee Arrangement (Shares)		Education and Selected Past Positions	Selected Current Positions at Other Companies	Managers Who are Spouses or within Second-degree Relative of Consanguinity to Each Other		
				Shares	%	Shares	%	Shares	%			Title	Name	Relation
Chief Executive Officer C.C. Wei	Male	R.O.C.	02/01/1998	7,179,207	0.03%	261	0.00%	-	-	Ph.D., Electrical Engineering, Yale University, U.S. President and Co-Chief Executive Officer, TSMC Executive Vice President and Co-Chief Operating Officer, TSMC Senior Vice President, Business Development, TSMC Senior Vice President, Mainstream Technology Business, TSMC Senior Vice President, Chartered Semiconductor Manufacturing Ltd.	None	None	None	None
Senior Vice President, Chief Financial Officer/ Spokesperson Finance, Europe & Asia Sales Lora Ho	Female	R.O.C.	06/01/1999	4,511,080	0.02%	2,230,268	0.01%	-	-	Master, Business Administration, National Taiwan University, Taiwan Senior Director, Accounting, TSMC Vice President & CFO, TI-Acer Semiconductor Manufacturing Corp.	Director and/or Supervisor, TSMC subsidiaries President, TSMC subsidiaries	None	None	None
Senior Vice President Research and Development/ Technology Development Wei-Jen Lo	Male	R.O.C.	07/01/2004	1,444,127	0.01%	-	-	-	-	Ph.D., Solid State Physics and Surface Chemistry, University of California, Berkeley, U.S. Vice President, Research and Development, TSMC Vice President, Manufacturing Technology Operations, TSMC Vice President, Advanced Technology Business, TSMC Vice President, Operations II, TSMC Director, Advanced Technology Development and CTM Plant Manager, Intel Corp.	None	None	None	None
Senior Vice President Corporate Strategy Office Rick Cassidy	Male	U.S.	11/14/1997	-	-	-	-	-	-	Bachelor, Engineering Technology, United States Military Academy at West Point, U.S. Chief Executive Officer, TSMC North America President of TSMC North America Vice President of TSMC North America Account Management	Director, TSMC subsidiary	None	None	None
Senior Vice President Operations/ Product Development Y.P. Chin	Male	R.O.C.	01/01/1987	6,922,122	0.03%	2,193,107	0.01%	-	-	Master, Electrical Engineering, National Cheng Kung University, Taiwan Vice President, Product Development Operations, TSMC Vice President, Advanced Technology and Business, TSMC Senior Director, Product Engineering and Services, TSMC	None	None	None	None
Senior Vice President Research and Development/ Technology Development Y.J. Mii	Male	R.O.C.	11/14/1994	1,000,419	0.00%	-	-	-	-	Ph.D., Electrical Engineering, University of California, Los Angeles, U.S. Vice President, Technology Development, TSMC TSMC Senior Director, R&D Platform I Division, TSMC	None	Director	Wayne Yeh	brother in law
Senior Vice President Information Technology and Materials Management & Risk Management J.K. Lin	Male	R.O.C.	01/01/1987	12,518,018	0.05%	1,073,387	0.00%	-	-	Bachelor, Science, National Changhua University of Education, Taiwan Vice President, Mainstream Fabs and Manufacturing Technology Operations, TSMC Senior Director, Mainstream Fabs Operations, TSMC	None	None	None	None
Senior Vice President Operations/ Fab Operations J.K. Wang	Male	R.O.C.	02/11/1987	2,553,947	0.01%	160,844	0.00%	-	-	Master, Chemical Engineering, National Cheng Kung University, Taiwan Vice President, 300mm Fabs Operations, TSMC Senior Director, 300mm Fabs Operations, TSMC	Director, TSMC subsidiaries	None	None	None
Vice President Quality and Reliability N.S. Tsai	Male	R.O.C.	03/01/2000	1,925,180	0.01%	1,103,253	0.00%	-	-	Ph.D., Material Science, Massachusetts Institute of Technology, U.S. Senior Director, Assembly Test Technology & Service, TSMC Vice President, Operations, Vanguard International Semiconductor Corp.	None	None	None	None
Vice President Corporate Planning Organization Irene Sun	Female	R.O.C.	10/01/2003	420,709	0.00%	-	-	-	-	Ph.D., Materials Science and Engineering, Cornell University, U.S. Senior Director, Corporate Planning Organization, TSMC	None	None	None	None
Vice President Research and Development/ Technology Development Cliff Hou	Male	R.O.C.	12/15/1997	352,532	0.00%	60,802	0.00%	-	-	Ph.D., Electrical Engineering, Syracuse University, U.S. Vice President, Design and Technology Platform, TSMC Senior Director, Design and Technology Platform, TSMC	Director, TSMC subsidiaries Director, TSMC affiliate President, TSMC subsidiaries	None	None	None
Vice President and General Counsel Legal Sylvia Fang	Female	R.O.C.	03/20/1995	700,285	0.00%	69,112	0.00%	384,000	0.00%	Master of Comparative Law, School of Law, University of Iowa Attorney-at-law, Taiwan Associate General Counsel, TSMC Senior Associate, Taiwan International Patent and Law Office (TIPLO)	Director and/or Supervisor, TSMC subsidiaries	None	None	None

(Continued)

Title Name (Note 1)	Gender	Nationality	On-board Date (Note 2)	Shareholding		Spouse & Minor		TSMC Shareholding by Nominee Arrangement (Shares)		Education and Selected Past Positions	Selected Current Positions at Other Companies	Managers Who are Spouses or within Second-degree Relative of Consanguinity to Each Other		
				Shares	%	Shares	%	Shares	%			Title	Name	Relation
Vice President Human Resources Connie Ma	Female	R.O.C.	06/01/2014	117,000	0.00%	-	-	-	-	EMBA, International Business Management, National Taiwan University Director of Human Resources, TSMC Senior Vice President of Global Human Resources, Trend Micro Inc.	None	None	None	None
Vice President Operations/ Fab Operations Y.L. Wang	Male	R.O.C	06/01/1992	218,535	0.00%	1,135,529	0.00%	-	-	Ph.D., Electrical Engineering, National Chiao Tung University, Taiwan Vice President, Technology Development, TSMC Vice President, Fab 14B Operations, TSMC Senior Director, Fab 14B Operations, TSMC	Director, TSMC subsidiary Director, TSMC affiliate	None	None	None
Vice President Research and Development/ Integrated Interconnect & Packaging Doug Yu	Male	R.O.C.	12/28/1994	225,000	0.00%-	-	-	-	-	PhD, Materials Engineering, Georgia Institute of Technology, USA Senior Director of Integrated Interconnect & Packaging Division in R&D, TSMC	None	None	None	None
Vice President and TSMC Fellow Operations/ Product Development/ More-than-Moore Technologies Alexander Kalnitsky	Male	U.S.	06/15/2009	-	-	-	-	-	-	PhD, Electrical Engineering, Carleton University, Canada Senior Director of More-than-Moore Technologies Division in R&D, TSMC	None	None	None	None
Vice President Business Development Kevin Zhang	Male	U.S.	11/01/2016	-	-	-	-	-	-	PhD, Electrical Engineering, Duke University, USA Vice President, Design and Technology Platform, TSMC Vice President, Technology and Manufacturing Group, Intel Corp.	None	None	None	None
Vice President and TSMC Fellow Operations/ Product Development T.S. Chang (Note 3)	Male	R.O.C.	02/06/1995	200,781	0.00%	-	-	-	-	PhD, Electrical Engineering, National Tsing Hua University Vice President, Fab 12B Operations, TSMC Senior Director, Fab 12B Operations, TSMC	None	None	None	None
Vice President Research and Development/ Technology Development/ N3 Platform Development Division Michael Wu (Note 3)	Male	R.O.C.	12/09/1996	478,501	0.00%	194,943	0.00%	-	-	PhD, Electrical Engineering, University of Wisconsin-Madison, USA Senior Director of N3 Platform Development Division in R&D, TSMC	None	None	None	None
Vice President Research and Development/ Technology Development/ Pathfinding Min Cao (Note 3)	Male	U.S.	07/29/2002	363,152	0.00%	4,470	0.00%	-	-	PhD, Physics, Stanford University, USA Senior Director of Pathfinding Division in R&D, TSMC	None	None	None	None
Vice President Research and Development/ Corporate Research H.-S. Philip Wong (Note 4)	Male	U.S.	07/02/2018	-	-	-	-	-	-	PhD, Electrical Engineering, Lehigh University, U.S. Willard R. and Inez Kerr Bell Professor in the School of Engineering, Stanford University Senior Manager, IBM Research	None	None	None	None
Vice President Operations/ Product Development/ Advanced Packaging Technology and Service Marvin Liao (Note 5)	Male	R.O.C.	06/06/2002	50,485	0.00%	-	-	220,000	0.00%	PhD, Materials Science, University of Texas-Arlington, U.S. Senior Director, Backend Technology and Service Operations, TSMC Vice President, Chartered Semiconductor Manufacturing Ltd.	None	None	None	None
Vice President Operations/ Fab Operations/ Fab 15B Y.H. Liaw (Note 6)	Male	R.O.C.	08/03/1988	370,000	0.00%	-	-	420,000	0.00%	Master of Chemical Engineering, National Tsing Hua University Senior Director, Fab 15B Operations, TSMC	None	None	None	None

Note 1: Senior Vice President and Chief Information Officer Dr. Stephen T. Tso retired, effective March 1, 2018. Vice President and Chief Technology Officer Dr. Jack Sun retired, effective August 1, 2018.
Vice President M.C. Tzeng retired, effective November 1, 2018. Vice President Dr. Been-Jon Woo retired, effective January 1, 2019.
Note 2: On-board date means the official date joining TSMC.
Note 3: Dr. T.S. Chang, Dr. Michael Wu and Dr. Min Cao were promoted to Vice President, effective February 13, 2018.
Note 4: Dr. H.-S. Philip Wong was promoted to Vice President, effective August 14, 2018.
Note 5: Dr. Marvin Liao was promoted to Vice President, effective November 13, 2018.
Note 6: Mr. Y.H. Liaw was promoted to Vice President, effective February 19, 2019.

2.5.2 Compensation Paid to CEO and Vice Presidents (Note 1)

Unit: NT$

<table>
<tr><th rowspan="3">Title</th><th rowspan="3">Name</th><th colspan="2">Salary (A)</th><th colspan="2">Severance Pay and Pensions (B) (Note 7)</th><th colspan="2">Bonuses and Allowances (C) (Note 8)</th><th colspan="4">Employees' Profit Sharing Bonus (D)</th><th colspan="2">(A+B+C+D) as a % of Net Income (Note 9)</th><th rowspan="3">Compensation Received from Non-consolidated Affiliates</th></tr>
<tr><th rowspan="2">From TSMC</th><th rowspan="2">From All Consolidated Entities</th><th rowspan="2">From TSMC</th><th rowspan="2">From All Consolidated Entities</th><th rowspan="2">From TSMC</th><th rowspan="2">From All Consolidated Entities</th><th colspan="2">From TSMC</th><th colspan="2">From All Consolidated Entities</th><th rowspan="2">From TSMC</th><th rowspan="2">From All Consolidated Entities</th></tr>
<tr><th>Cash</th><th>Stock (Fair Market Value)</th><th>Cash</th><th>Stock (Fair Market Value)</th></tr>
<tr><td>Chief Executive Officer</td><td>C.C. Wei</td><td>9,489,190</td><td>9,489,190</td><td>237,230</td><td>237,230</td><td>115,443,212</td><td>115,443,212</td><td>111,412,930</td><td>-</td><td>111,412,930</td><td>-</td><td>0.0674%</td><td>0.0674%</td><td>-</td></tr>
<tr><td>Senior Vice President, Chief Financial Officer/ Spokesperson</td><td>Lora Ho</td><td>5,546,520</td><td>5,546,520</td><td>138,663</td><td>138,663</td><td>46,733,828</td><td>46,733,828</td><td>45,165,372</td><td>-</td><td>45,165,372</td><td>-</td><td>0.0278%</td><td>0.0278%</td><td>-</td></tr>
<tr><td>Senior Vice President and Chief Information Officer</td><td>Stephen T. Tso (Note 2)</td><td rowspan="25">83,846,866</td><td rowspan="25">96,724,358</td><td rowspan="25">2,089,955</td><td rowspan="25">2,430,964</td><td rowspan="25">528,905,242</td><td rowspan="25">614,642,918</td><td rowspan="25">489,485,137</td><td rowspan="25">-</td><td rowspan="25">489,485,137</td><td rowspan="25">-</td><td rowspan="25">0.3145%</td><td rowspan="25">0.3427%</td><td rowspan="25">100,000</td></tr>
<tr><td>Senior Vice President</td><td>Wei-Jen Lo</td></tr>
<tr><td>Senior Vice President</td><td>Rick Cassidy</td></tr>
<tr><td>Senior Vice President</td><td>Y.P. Chin</td></tr>
<tr><td>Senior Vice President</td><td>Y.J. Mii</td></tr>
<tr><td>Senior Vice President</td><td>J.K. Lin</td></tr>
<tr><td>Senior Vice President</td><td>J.K. Wang</td></tr>
<tr><td>Vice President</td><td>M.C. Tzeng (Note 2)</td></tr>
<tr><td>Vice President and Chief Technology Officer</td><td>Jack Sun (Note 2)</td></tr>
<tr><td>Vice President</td><td>N.S. Tsai</td></tr>
<tr><td>Vice President</td><td>Irene Sun</td></tr>
<tr><td>Vice President</td><td>Cliff Hou</td></tr>
<tr><td>Vice President</td><td>Been-Jon Woo (Note 2)</td></tr>
<tr><td>Vice President and General Counsel</td><td>Sylvia Fang</td></tr>
<tr><td>Vice President</td><td>Connie Ma</td></tr>
<tr><td>Vice President</td><td>Y.L. Wang</td></tr>
<tr><td>Vice President</td><td>Doug Yu</td></tr>
<tr><td>Vice President and TSMC Fellow</td><td>Alexander Kalnitsky</td></tr>
<tr><td>Vice President</td><td>Kevin Zhang</td></tr>
<tr><td>Vice President and TSMC Fellow</td><td>T.S. Chang (Note 3)</td></tr>
<tr><td>Vice President</td><td>Michael Wu (Note 3)</td></tr>
<tr><td>Vice President</td><td>Min Cao (Note 3)</td></tr>
<tr><td>Vice President</td><td>H.-S. Philip Wong (Note 4)</td></tr>
<tr><td>Vice President</td><td>Marvin Liao (Note 5)</td></tr>
<tr><td>Vice President</td><td>Y.H. Liaw (Note 6)</td></tr>
<tr><td>Total (Note 10)</td><td></td><td>98,882,576</td><td>111,760,068</td><td>2,465,848</td><td>2,806,857</td><td>691,082,282</td><td>776,819,958</td><td>646,063,439</td><td>-</td><td>646,063,439</td><td>-</td><td>0.4097%</td><td>0.4379%</td><td>100,000</td></tr>
</table>

Note 1: Compensation policy, standards/packages, procedures, the linkage to operating performance and future risk exposure: The total compensation paid to the executive officers is decided based on their job responsibility, contribution, company performance and projected future risks the Company will face. It is reviewed by the Compensation Committee then submitted to the Board of Directors for approval.

Note 2: Senior Vice President and Chief Information Officer Dr. Stephen T. Tso retired, effective March 1, 2018. Vice President and Chief Technology Officer Dr. Jack Sun retired, effective August 1, 2018. Vice President M.C. Tzeng retired, effective November 1, 2018. Vice President Dr. Been-Jon Woo retired, effective January 1, 2019.

Note 3: Dr. T.S. Chang, Dr. Michael Wu and Dr. Min Cao were promoted to Vice President, effective February 13, 2018.

Note 4: Dr. H.-S. Philip Wong was promoted to Vice President, effective August 14, 2018.

Note 5: Dr. Marvin Liao was promoted to Vice President, effective November 13, 2018.

Note 6: Mr. Y.H. Liaw was promoted to Vice President, effective February 19, 2019. Therefore, his 2018 compensation data is not disclosed.

Note 7: Pensions funded according to applicable law. In accordance with TSMC Procedure of Retirement, the pension payment to Dr. Stephen T. Tso, Mr. M.C. Tzeng, Dr. Jack Sun and Dr. Been-Jon Woo amounts to NT$60,776,545.

Note 8: The above-mentioned figures include the expense for the employees' cash bonuses distributed in June, August, November 2018 & February 2019, Company cars and gasoline reimbursement, but do not include compensation paid to Company drivers (totaled NT$351,672).

Note 9: Total compensation paid to the executive officers from TSMC in 2017 accounted for 0.4820% of 2017 net income. Total compensation paid to the executive officers from all consolidated entities in 2017 accounted for 0.5109% of 2017 net income.

Note 10: These amounts do not include Dr. Mark Liu's compensation for the period from January 1 to June 4 when he served as President and Co-CEO of TSMC (please refer to "2.4.2 Remuneration Paid to Directors" on page 23 of this Annual Report for the "Compensation Earned by a Director Who is an Employee of TSMC"). Including Dr. Mark Liu's January 1 to June 4 compensation as President and Co-CEO, the total compensation paid to the executive officers from TSMC in 2018 accounted for 0.4343% of 2018 net income, and the total compensation paid to the executive officers from all consolidated entities in 2018 accounted for 0.4625% of 2018 net income.

Compensation Paid to CEO and Vice Presidents

	2018	
	From TSMC	From All Consolidated Entities and Non-consolidated Affiliates
NT$0 ~ NT$1,999,999	Rick Cassidy	None
NT$2,000,000 ~ NT$4,999,999	None	None
NT$5,000,000 ~ NT$9,999,999	Marvin Liao	Marvin Liao
NT$10,000,000 ~ NT$14,999,999	H.-S. Philip Wong	H.-S. Philip Wong
NT$15,000,000 ~ NT$29,999,999	Stephen T. Tso	Stephen T. Tso
NT$30,000,000 ~ NT$49,999,999	Jack Sun, Irene Sun, Been-Jon Woo, Connie Ma, Y.L. Wang, Doug Yu, T.S. Chang, Michael Wu, Min Cao	Jack Sun, Irene Sun, Been-Jon Woo, Connie Ma, Y.L. Wang, Doug Yu, T.S. Chang, Michael Wu, Min Cao
NT$50,000,000 ~ NT$99,999,999	Lora Ho, Y.P. Chin, Y.J. Mii, M.C. Tzeng, N.S. Tsai, J.K. Lin, J.K. Wang, Cliff Hou, Sylvia Fang, Alexander Kalnitsky, Kevin Zhang	Lora Ho, Rick Cassidy, Y.P. Chin, Y.J. Mii, M.C. Tzeng, N.S. Tsai, J.K. Lin, J.K. Wang, Cliff Hou, Sylvia Fang, Alexander Kalnitsky, Kevin Zhang
Over NT$100,000,000	C.C. Wei, Wei-Jen Lo	C.C. Wei, Wei-Jen Lo
Total	26	26

2.5.3 Employees' Profit Sharing Bonus Paid to Management Team

Unit: NT$

Title	Name	Stock (Fair Market Value)	Cash	Total Employees' Profit Sharing Bonus	Total Employees' Profit Sharing Bonus Paid to Management Team as a % of Net Income
Chief Executive Officer	C.C. Wei	-	111,412,930	111,412,930	0.0317%
Senior Vice President, Chief Financial Officer/ Spokesperson	Lora Ho	-	45,165,372	45,165,372	0.0129%
Senior Vice President and Chief Information Officer	Stephen T. Tso (Note 1)				
Senior Vice President	Wei-Jen Lo				
Senior Vice President	Rick Cassidy				
Senior Vice President	Y.P. Chin				
Senior Vice President	Y.J. Mii				
Senior Vice President	J.K. Lin				
Senior Vice President	J.K. Wang				
Vice President	M.C. Tzeng (Note 1)				
Vice President and Chief Technology Officer	Jack Sun (Note 1)				
Vice President	N.S. Tsai				
Vice President	Irene Sun				
Vice President	Cliff Hou				
Vice President	Been-Jon Woo (Note 1)	-	489,485,137	489,485,137	0.1394%
Vice President and General Counsel	Sylvia Fang				
Vice President	Connie Ma				
Vice President	Y.L. Wang				
Vice President	Doug Yu				
Vice President and TSMC Fellow	Alexander Kalnitsky				
Vice President	Kevin Zhang				
Vice President and TSMC Fellow	T.S. Chang (Note 2)				
Vice President	Michael Wu (Note 2)				
Vice President	Min Cao (Note 2)				
Vice President	H.-S. Philip Wong (Note 3)				
Vice President	Marvin Liao (Note 4)				
Vice President	Y.H. Liaw (Note 5)				
Total (Note 6)		-	646,063,439	646,063,439	0.1840%

Note 1: Senior Vice President and Chief Information Officer Dr. Stephen T. Tso retired, effective March 1, 2018. Vice President and Chief Technology Officer Dr. Jack Sun retired, effective August 1, 2018. Vice President M.C. Tzeng retired, effective November 1, 2018. Vice President Dr. Been-Jon Woo retired, effective January 1, 2019.

Note 2: Dr. T.S. Chang, Dr. Michael Wu and Dr. Min Cao were promoted to Vice President, effective February 13, 2018.

Note 3: Dr. H.-S. Philip Wong was promoted to Vice President, effective August 14, 2018.

Note 4: Dr. Marvin Liao was promoted to Vice President, effective November 13, 2018.

Note 5: Mr. Y.H. Liaw was promoted to Vice President, effective February 19, 2019. Therefore, his 2018 compensation data is not disclosed.

Note 6: Excluding the amount NT$41,152,680 paid to Dr. Mark Liu for the period from January 1 to June 4 when he served as President and Co-CEO of TSMC (please refer to "2.4.2 Remuneration Paid to Directors" on page 23 of this Annual Report for the "Compensation Earned by a Director Who is an Employee of TSMC"). Including Dr. Mark Liu's January 1 to June 4 compensation as President and Co-CEO, the total amount paid to the executive officers in 2018 was NT$687,216,119, accounted for 0.1957% of 2018 net income.