Apacer

Stock Code: 8271

# Apacer Technology Inc.

## 2019 Annual Report

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   N/A

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# Contents

# I. Letter to Shareholders

Dear Shareholders:

Throughout 2019, the highly uncertain global market and overall economic slowdown had a great impact on the semiconductor sector. The US-China trade war, Brexit, Japan-Korea tensions, Hong Kong protests and other heightened political conflicts caused a downturn in economic growth worldwide. The market demands for semiconductors plunged from the peak in the year before last and led to a drop in the average product prices. The result was decreased annual revenues.

The consolidated operating revenue in FY 2019 was TWD 7.49 billion, and the consolidated gross operating profit was TWD 1.4 billion. The consolidated net profit after tax was TWD 0.38 billion, and the earnings per share after tax was TWD 3.73. The following is an outline of the operating performance in FY 2019 and the operational plan for FY 2020:

1. Consolidated operating performance in FY 2019:

Unit: TWD 1,000

| Item | FY 2019 | FY 2018 | Difference |
|---|---|---|---|
| Operating revenue | 7,485,821 | 9,441,618 | (1,955,797) |
| Gross operating profit | 1,400,243 | 1,309,289 | 90,954 |
| Net operating profit | 483,595 | 437,883 | 45,712 |
| Net non-operating income (expense) | (4,695) | 623 | (5,318) |
| Net profit after tax | 376,629 | 358,830 | 17,799 |
| Net profit attributable to shareholders of the parent company | 376,642 | 358,839 | 17,803 |
| Non-controlling interests | (13) | (9) | (4) |
| Earnings (Loss) per share after tax (in TWD) | 3.73 | 3.56 | 0.17 |

2. Operating performance and research results in FY 2019:

In FY 2019, Apacer received several honors and recognitions for its operations, brands and products, including:

(1) Apacer was ranked in the top 5% of companies participating in the 5th Corporate Governance Appraisal. The ranking was a first for Apacer, the only one among its peers to be ranked as such.

(2) Apacer has continued to participate in the evaluation for the Best Global Brands of Taiwan, and has been ranked in the top 35 for three consecutive years.

(3) Apacer's 2018 CSR Report won the "Golden Award" for electronic information manufacturers under the category of Corporate Sustainability Report of the Taiwan Corporate Sustainability Awards (TCSA). It was the 2nd consecutive year for which Apacer has won the award.

(4) Due to its promotion of a healthy lifestyle, creation of a healthy workplace and encouragement of physical workouts, Apacer was certified as an iSports corporation by the Sports Administration, Ministry of Education.

(5) Apacer has received the Taiwan Excellence Awards for ten consecutive years.

(6) Apacer has continued its leading position in the shipment volume of SSDs for industrial control worldwide.

As indication of its show core competitiveness in product R&D, Apacer has received 37 patents, with applications filed or pending for 239 patents in Taiwan or abroad. Facing a constantly and rapidly changing industry and technological waves such as 5G, IoT and AI, Apacer has developed digital storage products and value-added services combining cloud and Industrial IoT (IIoT). In addition, Apacer has achieved impressive performance in its three core business areas of industrial control, consumer products and smart applications. For industrial control, Apacer has released the industrial-grade DDR4 high-performance wide-temperature memory, the DDR4-3200 industrial-grade memory and the first globally dual-certified XR-DIMM which has passed the RTCA DO-160G test for airborne equipment. For consumer products, Apacer has rolled out the co-branded 3D figurine flash drive and the M.2 PCIe Gen4x4 SSD that supports PCIe 4.0. For smart applications, Apacer has worked with its partners to promote painless smart upgrade for long-term care wards with the release of the innovative function of "event shot", which has until now been applied by a number of long-term care centers. Apacer has also actively invested in the smart IoT market, with applications in plant factories, tunnel lighting control and smart environmental control to help customers make a start on smart IoT innovations.

3. Operational plan for FY 2020:

(1) Operational guidelines

Apacer is in principle committed to stable and sustainable profit growth. With digital storage as the core, Apacer develops an information service ecosystem for "reception", "analysis", "sharing" and "control" to achieve market segmentation and firmly maintain its advantage as the leader in the field of digital storage.

(2) Operational objectives

Apacer seeks to strengthen its investment in the vertical market, develop diverse value-added services and optimize user experience in order to improve brand visibility and build up brand image for the creation of values and competitive advantages.

(3) Core policies on production and sale

Apacer follows the latest global developments and changes in market demands while maintaining close partnership with its suppliers in order to gain competitive advantages in stable supplies and purchase costs. Apacer also continues to improve its R&D and manufacturing capabilities to fulfill customer demands and enhance operating performance.

(4) Development strategies

Newly emerging technologies, including 5G, IoT, AI, edge computing and cloud storage, have changed how things work in the areas of applications. Apacer has focused on developing the eight major application markets and, taking into account the trend in the development of cloud management demands, has continued to provide value-added services to build an IoT-integrated ecosystem through SSDs that receive, analyze, share and control remote data. Apacer optimizes user experience to satisfy the demands for digital mobile storage. Moreover, with innovative thinking and its capability in the integration of software and hardware, Apacer seeks to become the leading integrator of technology-enabled information services.

Looking forward to 2020, Apacer will apply the spirit of "keeping our word, insisting on the best and advancing with our partners" in encouraging our employees to keep self-improvement and enhance the quality of products and services, with the aim to achieve mutual benefits and win-win outcomes with partners and customers, steadily move toward sustainable management, and implement the commitment to CSR.

Chairman 

General Manager 

Accounting Manager 

# II. Company Profile

1. Founding date

   April 16, 1997

2. History

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| 1997 | April | We were founded in Taipei City as BizAnchor Service Network Inc., an enterprise re-invested by Acer Group and with TWD 10 million as initial capital. We were a professional manufacturer of memory modules. |
| | July | We moved to Xizhi Township, Taipei County, and we renamed ourselves Apacer Technology Inc. |
| | October | For the development of global logistics, we founded Apacer Memory America Inc. as our US subsidiary. |
| 1998 | January | The Longtan Factory was established. |
| | February | With the European market booming, we founded Apacer Technology B.V. as our European subsidiary. |
| 1999 | August | We received the ISO 9002 certification. |
| 2000 | July | We conducted an initial public offering. |
| | August | To expand business in the Japanese market, we founded Apacer Technology Corp. as our Japanese subsidiary. |
| 2001 | March | We invested in AQR Technology Inc. and acquired 100% of its shares. |
| | August | With approval from the Ministry of Economic Affairs (MOEA) through Letter Jing-(90) No. 90030399, we acquired HONG YU Technology Co., Ltd. as our Hong Kong subsidiary. |
| | October | With approval from MOEA through Letter Jing-(90)- Tou-Shen-Er-Zi No. 90036342, we acquired Apacer Technology (BVI) Inc. as our subsidiary in the British Virgin Islands. |
| | October | To expand our business in the Chinese market, and with approval from the Ministry of Economic Affairs through Letter Jing-(90)-Tou-Shen-Er-Zi No. 90036342, Apacer Electronic (Shanghai) Co., Ltd was founded with re-investment from Apacer Technology (BVI) Inc. |
| 2002 | August | To expand our business into multimedia and digital storage sector, we acquired 100% of the shares of Pronology Services Inc. |
| 2003 | April | We released he Disc Steno CP100, the world's first Disc Steno portable CD recorder. Disc Steno CP100 operates on the basis of "stand-alone", a state-of-the-art concept. Through integration of the card-reading function and recording technology, it transfers digital images from memory cards to CDs and enables more diverse usage of such images. |
| | August | We received the ISO 9001:2000 certification. |
| 2004 | January | The Disc Steno CP200 portable CD recorder and the Audio Steno MS400 USB flash drive won the Taiwan Excellence Award. |
| | January | Our shares began to be traded as emerging stocks in the over-the-counter (OTC) market. |
| 2005 | April | The Longtan Factory received the ISO 14001:2004 certification. |
| | May | We passed the test of Sony's SS-00259 standards for environmental protection, and our memory modules for notebooks and desktops passed the test of the "Restriction of Hazardous Substances" (RoHS) directive. |

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| 2005 | June | We took the lead in the industry to release FB-DIMM products that meet the demands of servers and workstations for high bandwidth, speed and capacity. |
| | June | Our embedded flash memory modules received RoHS certification. |
| | June | Share Steno, the world's first OTG USB device for storage of digital images, won the National Award of Excellence. |
| | November | We established the e-Flash Business Development Center to actively develop industrial flash products for the storage solutions of OS and AP platforms. |
| 2006 | April | Our FB-DIMM passed the test of the Intel Platform Memory Organization, making us the first DRAM manufacturer in Asia to receive the certification. |
| | April | FB-DIMMs compatible with Intel server platforms were released, and we became Intel's enabling partner. |
| | May | We unveiled world's first 2.5 inch SATA RAID flash drive (SRFD) that greatly increases data reliability and security. |
| | September | Our FB-DIMM became the first product of its kind worldwide to pass the CMTL compatibility test. |
| | October | Our AH520, AA220, FB-DIMM, and DDR400 VLP ECC RDIMM 2GB won the Taiwan Excellence Award. |
| | October | Our AH520 won the G-Mark international design award in Japan. |
| | November | We became an official supplier of memory modules for the 2006 World Cyber Games (WCG) in Italy. |
| | November | Our Handy Steno became compatible with the latest ReadyBoost technology for Windows Vista. |
| 2007 | January | We became the only official manufacturer of memory modules for Microsoft Windows Vista. |
| | March | To expand business in the Indian market, we founded Apacer Technologies Pvt Ltd. as our Indian subsidiary. |
| | May | Our "A+ Project for Enhancing Global Logistics Values" was selected as a pilot project sponsored by MOEA. |
| | June | The Company became an official supplier of memory modules for the Taiwan Regional Qualifier of the 2007 WCG. |
| | September | The objective of our 10th anniversary was to make us one of the three largest brands of memory storage in the world. |
| | November | The Company's AU860 MP4 player and AH225 USB flash drive won the G-Mark international design award in Japan. |
| 2008 | February | We unveiled the ADM III SSD, with a speed three times faster than its predecessors to meet the application demand on storage speed. |
| | March | We unveiled the Aeolus DDR3-1800MHz/1600MHz memory modules, which adopt the world's first active fan/dual-layer heat sink designed for overclocking. |
| | April | We were selected for the "Coaching Project for International Brand Management" of the Bureau of Foreign Trade, MOEA. |
| | April | Our AH421 won the 2008 iF Product Design Award. |
| | May | Our Aeolus active overclocking memory modules won the Taiwan Excellence Award, Innovation Award from the PC World magazine in Greece, and the Editor's Choice award from PC Magazine in Russia. |

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| 2008 | May | In cooperation with Diskeeper, the leading manufacturer of disk defragmentation tools, we introduced the SSD+*Optimizer*, the world's first SSD solution with disk defragmentation software. |
| | June | In cooperation with RTD, the founder of PC/104 Consortium, we developed the micro SATA Disk Chip (SDC) SSD designed for PC/104 platforms. |
| | September | Our memory module products won the NOVA Channel Award as the first choice of retailers. |
| | October | Our AH225 and AH421 USB flash drives won the Best Iinnovation Award from Tweak in Germany. |
| | November | Our HT203 USB flash drive won the Rexware Golden Award in France. |
| 2009 | March | By exclusively adopting the innovative stacking technology, we unveiled SAFD 254, the only high-capacity industrial SSD which supports a wide range of operating temperature. |
| | April | We established an office in Shenzhen, China. |
| | November | We became an official supplier of memory modules for the 2009 WCG Finals in Chengdu, China. |
| | November | We established the VA-Consumer Product Department which covers four product lines: digital storage, multimedia entertainment, digital sharing, digital peripherals. |
| 2010 | January | The design of the power supplies of the proprietary port of our SDM 7P/180D LP industrial SSD won the 18th Taiwan Excellence Award. |
| | March | Our SmartBadge, which integrates demands for business security and data storage, won the iF Product Design Award. |
| | September | Our SmartBadge won the G-Mark international design award in Japan. |
| | December | We became listed on the Taiwan Stock Exchange. |
| 2011 | January | Our SUFD industrial SSD, AS602 consumer SSD, and AH128/AH129 USB flash drives won the Taiwan Excellence Award. |
| | February | We unveiled ultra-high speed industrial CFast cards, with a groundbreaking transmission speed three times faster than those of conventional IDE interfaces. |
| | November | We unveiled the world's fastest UHS microSDXC 64GB memory card with high capacity. |
| | December | Our AC232 external hard drive won the 20th Taiwan Excellence Award. |
| 2012 | January | We unveiled the 8GB DDR3 1600 UDIMM with ECC memory module for servers. With high capacity and processor speed, the product module enables servers to run flawlessly at high speed (12800MB/s). |
| | April | We unveiled the mPDM (mini PCIe Disk Module) modular SSD, which has higher transmission speed and provides higher storage capacity for high-end applications including web storage and business servers. |
| | May | The Comapny unveiled the DDR3-1600 ECC RDIMM memory module designed for storage servers. |
| | July | We unveiled the AC232 USB 3.0 high-speed portable hard drive with a stylish ocean pattern. The product features an exclusive anti-slip/anti-shock design and a flowery pattern, and it protects valuable data. |
| | September | We unveiled more ultra-high speed industrial CFast cards with a further enhanced speed to expand our share in the market of high-performance computing. |

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| 2012 | December | Our SDM4 7P/180D ultra-slim SSD and WiFun AF750 portable wireless storage device won the 21st Taiwan Excellence Award. |
| 2013 | January | We unveiled three models of the latest SATA 3.0 SSDs with high-speed transmission interfaces, able to meet the demands for cloud applications, huge data volumes and mobility. |
| | March | As the trend of mobility has kept moving forward, we adopted three strategies for market planning: organizational innovation, model innovation, management innovation. |
| | June | We became the world's no. 1 supplier of industrial SSDs. |
| | July | We established our operational headquarters in Tucheng to realize the plan of bringing the factory and head office together. The establishment successfully set a milestone for us in the process of fulfilling the objective of sustainable development. |
| | August | We took the lead in the industry to unveil the 22 Pin SATA 6Gb/s high-speed modular SSD, along with mobile peripherals to meet the demands for mobile applications. |
| | November | We released the SSDWidget real-time monitoring software using cloud technology. |
| | December | We were the only industrial SSD manufacturer to win the 22nd Taiwan Excellence Award. The award-winning products: SSDWidget (the world's first cloud monitoring software), SFD 25A-M (the first ultra-slim SSD which is only 5mm-thin), CSD (a dual-drive SSD with groundbreaking and unique design). |
| 2014 | March | We unveiled our vision for business operations in 2014. We adopted H.O.R.S.E., the five operational strategies designed to provide more comprehensive user experience for business clients and end users, explore potential business opportunities in all aspects, and plan for the development of the global market. |
| | May | With rapid global growth of cloud applications and big data, we unveiled the SATA 3 high-capacity SFD 25H-M SSD, a whole new product with highly enhanced features. |
| | June | We continued to be ranked by Gartner as the world's no. 1 supplier of industrial SSDs in 2013. |
| | September | We participated in the Green Power Purchase Program launched by the government as we made commitments to green energy policies and the promotion of energy conservation and CO2 emission reduction. |
| | November | Chang Chia-kun, our President, was among the "Top 100 MVP Managers" selected by the magazine Manager Today. He also received the Outstanding IT Elite Award. These honors are highly respected in the IT industry. |
| | December | For the sixth consecutive year, we were honored with Taiwan Excellence Awards. Five products won awards at the 23rd edition of these Awards: UrKey Technology SSD (provides comprehensive data security and protection), Combo SDIMM (a hybrid SSD-DRAM memory module featuring innovative storage design ), WP210 Apacer Power Speaker (a power speaker which breaks technological limits), AH450 USB3.0 (a USB flash drive with appearance of silver), AH175 (dual-functional OTG flash drive) + Apacer FileBridge mobile app (this combination provides integration of software and hardware). |

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| 2015 | January | We and Phison Electronics Corp. jointly announced our entering into strategic cooperation through private placement. The aim is to reinforce our robust experiences and R&D capabilities in the fields of industrial SSDs and controllers through this mutual investment. |
| | January | We unveiled our vision for business operations in 2015. We launched the 3.0 Upgrade Plan, aiming to expand business operations and develop the global market by focusing on breakthroughs in four aspects: forming strategic niche alliances in the field of industrial control, following the trend of mobile devices, expanding business operations in eSports, and development of cloud integration. |
| | February | We entered into a co-branding partnership with Jimmy Liao, a famous picture book illustrator in Taiwan, in unveiling the Jimmy Limited Edition of the WP210 power speaker with wireless charging and the compact and adorable WS211 Bluetooth speaker. |
| | April | We unveiled the flagship Blade DDR4 overclocking memory module, a cross-generational, top-class DDR4 product which is compatible with the Intel Haswell-E processor and X99 chipset and boasts a clock rate of up to 3300 MHz, bringing unprecedented computing performance and energy-saving efficiency. |
| | May | We unveiled wholly new upgraded SSD solutions for industrial control, and offered high-speed, high-capacity SSD products of the PCIe and SATA 3 series. |
| | June | For the third consecutive year, we were ranked by the market research ageny Gartner as the world's no. 1 supplier of industrial SSDs. |
| | July | Using the technologies of proprietary micro optics and spectrum measuring system integration, we developed lightweight and portable spectral luminance and color meters. |
| | October | We unveiled the high-capacity 16GB DDR3L 1600 SODIMM, which passed the test of CMTL certification. Operating at a voltage of just 1.35V, the product shows impressive efficiency on a low-power and high-performance basis, becoming the world's only high-capacity memory product that has passed the compatibility test of Intel NUC 5i5MYBE/5i3MYBE/5i3RYH platforms. |
| | December | For the 7th consecutive year, we were honored by the Taiwan Excellence Award. Five products won at these 24th Awards: NFC SSD (upgrades data security and protection with wireless communication technologies), CoreAnalyzer software (with unique and innovative SSD analyzing technology), NOX DDR4 SO-DIMM (a memory module with high stability and performance), AH650 (a USB fingerprint flash drive that secures the user's private data), AH157/AH116 (lightweight, portable mini-sized USB flash drives). |

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| 2016 | January | We unveiled the USB 3.0 fingerprint flash drives which use exclusive biometric identification technology and are capable of 360º all-angle sensing and discrete management of public and private data. Soon after release, the product won the 2016 Taiwan Excellence Award and was listed as one of the Top 100 Innovative Products of the 2015 IT Month. |
| | March | We unveiled our vision for business operations in 2016. Through developing core storage technologies, we focused on vertical applications for industries. Following trends in the consumer market, we seek to develop an IT-enabled service ecosystem integrating the storage, reception, analysis, control and sharing of information. The aim is to take the lead in the development of the growing areas of cloud application and IoT. |
| | May | We unveiled the first ALLONE controller, featuring the AvataRAM innovative storage solution with low latency and long lifespan. |
| | June | For the fourth consecutive year, we were ranked by the market research ageny Gartner as the world's no. 1 supplier of industrial SSDs. In addition, we ranked 9th on DRAMeXchange's survey of revenues of memory module manufacturers worldwide in 2015. |
| | June | We unveiled the AH190 dual-interface USB flash drive exclusively designed for Apple devices. The product passed the most stringent test of Apple MFi certification. |
| | August | We unveiled the UDM USB 3.0 1U modular SSD exclusively designed for 1U servers and with a height of just 22.4 mm. |
| | August | We unveiled the Z280 M.2 SSD which conformsed to the newest NVMe 1.2 standards and was the world's first product of its kind to adopt the native PCIe Gen3 x4 interface specifications. |
| | October | We and Clevo Co. cooperated in developing the NOX DDR4 SO-DIMM heat-resistant memory with a clock rate of up to 3000 MHz. Performance was pushed to the limit with the aim to develop the world's best gaming laptops. |
| | November | In cooperation with the illustrator Crystal who is well-known in Taiwan, we unveiled several co-branded products including the AH333 USB flash drive and the AC233 portable hard drive. |
| | November | Our NOX DDR4 SO-DIMM was tested in combination with Gigabyte's BRIX ultra compact gaming computer. The test showed NOX DDR4 SO-DIMM, a product validated by real records, was the only laptop memory that could maintain stable operation when running at a clock rate of 3200 MHz. |
| | December | Victor Lin, our Vice President and CFO, won the 34th National Manager Excellence Award - Financial Manager. |
| | December | For the 8th consecutive year, we were honored with Taiwan Excellence Awards. Six products won in these 25th Awards: AS720 (an exclusive, proprietary dual-interface SSD), AS330 SSD in combination with the high-performance PANTHER DDR4 gaming PC memory module, AH180 (a USB 3.1 Type-C dual flash drive for mobile applications), AH159/AH118 (lightweight and super-mini USB 3.1 Gen 1.0/2.0 flash drives), AC830 (a military-grade shockproof portable hard drive), SDM7 7P/180D DP (an ultra compact industrial SSD). |

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| 2017 | January | BLADE, COMMANDO and PANTHER DDR4 Gaming PC Memory passed the QVL verification of leading companies to provide total support of the latest Intel® 200 series motherboards. |
| | February | NVMe PCIe SSD was launched. It provides a transmission rate up to PCIe Gen3 x4 and supports the industry-leading NVMe (Non-Volatile Memory Express) technology to substantially improve IOPS low latency performance, and also break through the bottleneck of the AHCI standard to demonstrate the full capability of SSD. |
| | March | The first drop-resistant mobile hard disk AC730 of military specifications was launched. The armor made of aluminum alloy can bear a load of 1500kg with anti-drop capability of military specifications as well as IP68 waterproof and dust-resistance features. The internal suspension and shockproof functions with five defending capabilities are available. |
| | April | The integrated CAN bus communication module and GPS-based EFC-G/EFC-R series products with dual-board modules. With the support of the integrated software kit (SDK) for selectable car-borne information and communication network cloud to provide control centers with intelligent and complete vehicle solutions such as fleet management, vehicle safety monitoring, and unmanned vehicle monitoring. |
| | April | The durable microSDHC/XC memory cards were introduced to provide the best solution with an all-weather safety surveillance system. The first anti-vulcanization series memory in the world was launched for the environment exposed to sulfur. The product has been highly recognized and is patented in many countries. The brand-new anti-vulcanization memory can effectively solve the problem of vulcanized corrosion from polluted environments, improve the overall service life of the system, and meet the requirements for stable operation for a long period of time in a harsh environment. |
| | April | The first anti-vulcanization series memory in the world was launched for the environment exposed to sulfur. The product has been highly recognized and is patented in many countries. The brand-new anti-vulcanization memory can effectively solve the problem of vulcanized corrosion from polluted environments, improve the overall service life of the system, and meet the requirements for stable operation for a long period of time in a harsh environment. |
| | May | A celebration was held for our 20th anniversary. We have been rated by Gartner as the best SSD supplier in the world for five consecutive years since 2012 , and set a solid foundation for our leading position in the industrial control market. |
| | August | We participated in the (Australasian Gaming Expo) in Sydney, Australia, and displayed a full range of storage solutions that we developed for gaming applications, including CF Card, CFast Card, SDM (SATA Disk Module), M.2 SSD, DRAM and other memory modules. |
| | September | The super gaming SSD - Apacer COMMANDO Series PT920 - was introduced to the market. The product uses the PCIe Gen 3 x4 high speed interface to ensure a reading/writing rate of 2500/1350 MB every second. The random write speed demonstrates excellent performance of 175,000 IOPs. |

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| 2017 | October | The dedicated portable storage solution AH790 Rotary Disk for iPhone and iPad were launched. The product passes the Apple MFi certification to a maximum capacity of 64GB, and features rotary switching between Lightning and USB 3.1 Gen1 Type-A ports. |
| | October | We won the great honor of Taiwan Excellence Award for nine consecutive years. Six products of “innovative value” won in the 26th Taiwan Excellence Awards, including the PM110-25 SSD, with a PCIe interface, of military specifications, the SV250-7 Series of the new generation supported with the innovative Multi-PowerPath power supply technology, the DDR4 Memory Series for gaming competition and the PCIe SSD, the ASMini Pocket SSD as the first choice for businessmen, and the AC630, AC631 and AC632 portable HDs that passed the anti-drop certification of US military specifications. |
| | November | We worked with P714 Planet, an original illustration brand name in Taiwan, to introduce three Apacer X P714 co-branded models - “Up in the Air”, “Escort” and “Support” - of AH336 USBs and AC233 USB 3.1 Gen 1 1TB portable HDs with “Dream Planet” as the concept of the creation. |
| | November | We won the “Silver Award” for the electronic information manufacturing industry in the Corporate Sustainability Report Category of the 2017 Taiwan Corporate Sustainability Awards (TCSA). |
| 2018 | February | We participated as an exhibitor in Embedded World 2018, the largest international trade fair for industrial computers held every year in Nuremberg, Germany. We demonstrated our rugged SSD technology |
| | March | with the release of the PANTHER DDR4 memory and SSD, whose excellent performance and tough appearance quickly drew the interest of modders and eSport players from countries around the world. |
| | March | We became the first manufacturer in the industry to begin mass production of the DDR4 2666 industrial memory module for servers of all series. The memory module can be supported by the latest Intel Purley and AMD EPYC processors, riding on a wave of demands for new servers in the global market. |
| | April | We introduced the technical-grade wide-temperature identification and established the market specifications. |
| | May | During the COMPUTEX exhibition, we used “Technology Community and Smart IoT” as the theme to display our latest technologies, products and software-hardware integration in six application fields across industrial IoT, transportation, national defense application, gaming and eSports and entertainments. |
| | June | We released the high rugged memory module XR-DIMM to build the highest reliability in the industry and was the first to introduced it into the military specification application. |
| | July | We launched the brand-new high specification V30/V10 microSDXC/SDHC memory card. |

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| 2018 | August | By the great achievement in the active exploration of the optical inspection, we promoted the luminance inspection project for liquid crystal panels with high-end customization and wireless transmission support. This project also has a “depolarization ” patent to solve errors of the optical spectrometer and optimize the automated optical inspection (AOI) results. Numerous well known manufacturers of panels and industrial computer have introduced this project into their factory.<br>With great results from the positive investment in the vertical application market, we participated in the Australasian Gaming Expo fro two consecutive years to expand our share in the gaming storage market via our core technology. |
| | October | For the tenth consecutive year, we were honored by the Taiwan Excellence Awards for eight products that stood out this year, including industrial control, optics and consumer product applications. We also won the achievement award as the grand total of our awarded products has exceeded 50 products. |
| | November | To follow the burgeoning illumination inspection trend, Apacer attended the world’s largest Hong Kong International Lighting Fair and introduced the high customized solutions for measurement from the real-time illuminance sensing to the professional illuminance formula calibration. |
| | December | Appreciated by 435 professional judges of the most authoritative and representative Taiwan Corporate Sustainability Award, our 2017 corporate social responsibility report stood out among 148 competing enterprises and won the “Golden Award” in the electronic information manufacturing industry category. |
| | December | We participated in the InterBrand appraisal and ranked in the top-35 of Taiwan global brands and won the “Emerging Brands” award. |
| | December | We released the world’s fastest technical grade memory card CFexpress to meet the specifications of the latest CFA CFexpress1.0 and NVME. By adopting the XQD standard and high-speed PCIe Gen3x2 interface along with the advantages of high capacity, high efficiency and low latency, we continued to expand the market of high performance computing, AI and deep learning and intelligent image analysis. |
| 2019 | January | We worked with our IoT partners to carry out painless smart upgrades for long-term care wards. By using Line to control environmental monitoring equipment and utilizing robots to assist in ward rounds, we sought to build a system closest to the needs of care workers. |
| | February | At West 2019, we made our debut in the military equipment market with our advanced information security technology and rugged storage solutions. |
| | March | At 2019 Embedded World, we showcased our brand-new high-speed storage solutions which focused on AIoT/IoT core applications, bringing new momentum to our operations. |
| | March | As a start on smart city environmental monitoring, we participated in the Smart City Summit & Expo to promote our IoT solutions for environmental monitoring. |
| | March | We participated in the Japan IT Week in Tokyo, where we demonstrated our capabilities in industrial control. |

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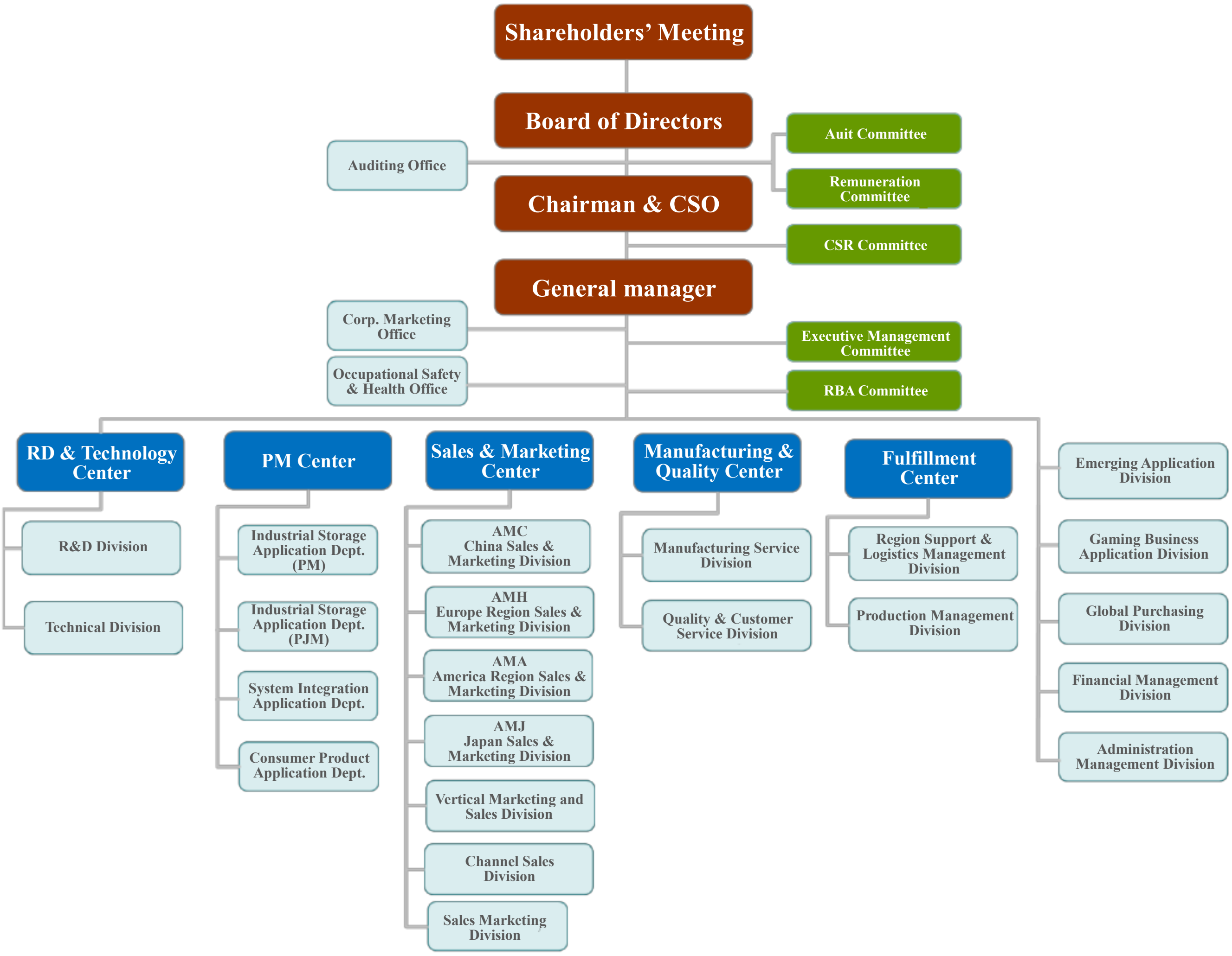
| 2019 | April | We released the industrial-grade DDR4 high-performance wide-temperature memory. |
| | April | We promoted the feature of instant upload of live photos for environmental monitoring, and the function of "event shot" was well-received by the market. |
| | May | We were ranked in the top 5% of companies participating in the 5th Corporate Governance Appraisal, and we were invited to the award ceremony. |
| | May | We took part in COMPUTEX held at the Nangang Exhibition Center in Taipei, where we showcased our strategic plan under the title of "Smart IoT: Infinite Possibilities". |
| | July | We released the AS2280Q4 M.2 PCIe Gen4x4 SSD. |
| | August | We participated in the Australasian Gaming Expo in Sydney for the third time, and we showed our R&D capabilities by being the first manufacturer to introduce the latest 3D NAND SLC-liteX technology. The XR-DIMM passed the RTCA DO-160G test for airborne equipment, becoming the first of its kind to be dual-certified globally. |
| | October | We became the first manufacturer to release the full series of the DDR4-3200 industrial-grade memory, which supports the latest Intel Cascade Lake and AMD Rome processor platforms. |
| | October | For the third consecutive year, we were ranked in the top 35 of the Best Global Brands of Taiwan, and we received the "Emerging Brands" award. |
| | October | For the first time, we took part in the Asia Agri-Tech Expo, where we exhibited our smart environmental monitoring capability based on dual strategies for groundbreaking transformation. |
| | October | We were certified as an iSports corporation in 2019 due to our continued promotion of the "Sports Day" and encouragement of employees to do exercise. |
| | November | For the second consecutive year, we won the "Golden Award" for electronic information manufacturers under the category of Corporate Sustainability Report of the Taiwan Corporate Sustainability Awards (TCSA). |
| 2020 | January | We cooperated with Advantech in promoting industrial cloud services, our first investment in smart factory application. |
| | February | We cooperated with Allxon, our strategic partner, in cloud-monitoring of SSDs and investing in the smart IoT market. |
| | February | We participated in Embedded World, held in Nuremberg, Germany, and demonstrated our industrial cloud services. |

# III. Corporate Governance

1. Organizational system

   (1) Organizational structure



(2) Tasks of the main divisions

| Division | Tasks |
|---|---|
| Auditing Office | (1) Assess the defects of the internal control system and the efficiency of operations.<br>(2) Provide advices for improvement to ensure the internal control system continues to be implemented effectively.<br>(3) Assist the BoD and the management in fulfilling their responsibilities. |
| Occupational Safety & Health Office | (1) Education regarding occupational safety and health.<br>(2) Impact analysis, supervision and advice regarding work safety.<br>(3) Prevention, monitoring and control of unsafe conduct at work.<br>(4) Planning, advice and supervision regarding work safety improvement programs.<br>(5) Prevention and control of occupational accidents, and the planning, advising and supervision regarding the protection of employee health, safety and well-being. |
| Corp. Marketing Office | (1) Design and informative promotion of corporate image.<br>(2) Planning and implementation regarding the promotion of CSR activities. |
| RD & Technical Center | (1) Formulate strategies regarding the direction of R&D for new technologies and products.<br>(2) Research and development of software, firmware, hardware and institutional integration for product technologies.<br>(3) R&D of our core technologies, and submission of patent applications.<br>(4) Specialized technical services and certification of product technologies. |
| PM Center | (1) Market research, collection and analysis of market information, and formulation of strategies for product marketing.<br>(2) Planning for new product design and coordinating with R&D units over formulation of R&D strategies.<br>(3) Coordination with business units over inter-division resource integration to increase output.<br>(4) Handling major customer complaints. |

| Division | Tasks |
|---|---|
| Sales & Marketing Center | (1) Market research, information collection, and formulation of strategies regarding the planning of market business in line with the annual operational objectives.<br>(2) Maintenance of customer relations and development of new customers, channels and application areas.<br>(3) Understanding new application areas and collection of customer demands in all channels and application areas.<br>(4) Handling major customer complaints and coordination with the R&D unit in responding to customer product analysis reports.<br>(5) Coordination with product units over the positioning/packaging of product solutions and promotion, planning and implementation of informative events. |
| Manufacturing & Quality Center | (1) Manufacturing of our products.<br>(2) Research and improvement regarding production engineering and technologies.<br>(3) Inspection and testing of product quality.<br>(4) Inspection, improvement and control of hazardous substances for products.<br>(5) Analysis and improvement of production defects.<br>(6) Product after-sales services.<br>(7) Document management center. |
| Fulfillment Center | (1) Integration of global customer demands and simulation of material supplies and demands.<br>(2) Production scheduling for global business orders, and planning and implementation for order delivery.<br>(3) Providing global business supports and services.<br>(4) Providing sales and operational information of products.<br>(5) Management, warehousing and transportation of raw materials.<br>(6) Overall management of global imports and exports.<br>(7) Optimization of operational processes. |

| Division | Tasks |
| --- | --- |
| Emerging Application Division | (1) Market research, information collection, and formulation of strategies regarding the planning of market business in line with the annual operational objectives.<br>(2) Develop business of smart application products and explore new customers.<br>(3) Integration of all B2B business resources and determination of sales and marketing strategies.<br>(4) Handling of major customer complaints and exploration of special channels for products.<br>(5) Planning of distribution, production and priorities regarding domestic/foreign orders.<br>(6) Collection of customer demands. |
| Gaming Business Application Division | (1) Market research, collection and analysis of market information, product development and business planning strategies.<br>(2) Development/Sales of water-cooled chassis/related components/memory modules for gaming computers.<br>(3) Market integration/Development, implementation and enhancement of dual-brand channel strategies.<br>(4) Brand promotion, establishment of channels and development of potential markets for ZADAK. |
| Global Purchasing Division | (1) Planning and management of the procurement of raw materials and components for products.<br>(2) Bargaining and management regarding the contractors of externally procured products. |
| Financial Management Division | (1) Establishment of procedures for accounting and tax matters and financial statements of the Company.<br>(2) Control of the accounting and tax matters of subsidiaries.<br>(3) Matters related to convening BoD meetings.<br>(4) Control of our cash flow, and movement of funds<br>(5) Announcement and disclosure of material information, and maintenance of investor relations<br>(6) Reinvestment and risk control. |

| Division | Tasks |
|---|---|
| Administration Management Division | (1) Management and establishment of our information systems.<br>(2) Establishment of database and system planning for data security/protection.<br>(3) Assistance in consultation regarding the information technologies of the Company.<br>(4) Matters related to legal affairs, patents and trademarks of the Company.<br>(5) Matters related to the management of contracts and seals of the Company.<br>(6) Planning and formulation of HR strategies and management systems for general and factory affairs of the Company.<br>(7) Establishment of welfare resource systems.<br>(8) Planning and implementation of shareholders' meetings, and shareholder services.<br>(9) Establishment and implementation of management regulations. |

2. Information about directors, supervisors, president, vice president, assistant managers, and supervisors of the branches and offices

(1) Directors and supervisors

April 1, 2020

| Title | Nationality or country of registration | Name | Date of election | Gender | Term | Date of first election | Shares held at time of election | | Current shares held | | Current shares held by spouse or minor children | | Shares held in the name of others | | Educational background and experience | Concurrent posts in Apacer or other companies | Other supervisors, directors or supervisors in a spousal relationship or within the second degree of kinship | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Number of shares | Shareholding ratio | Number of shares | Shareholding ratio | Number of shares | Shareholding ratio | Number of shares | Shareholding ratio | | | Title | Name | Relation |
| Chairman and CSO | Republic of China | Austin Chen | 2018.5.30 | Male | 3 years | 2001.04.30 | 1,525,633 | 1.51% | 1,525,633 | 1.51% | 450,268 | 0.45% | - | 0.00% | Apacer Technology Inc., Chairman<br>Acer Inc., Vice President<br>M.B.A., Department of Management Science, National Chiao Tung University | Apacer Technology Inc., Chairman and CSO<br>Apacer Technology (BVI) Inc. Director<br>Darwin Precisions Corp., Independent Director<br>JoiiUp Technology Inc., Representative of Legal Person as Director<br>OtO Photonics Inc., Representative of Legal Person as Director | None | None | None |
| Director | Republic of China | Teddy Lu | 2018.5.30 | Male | 3 years | 2008.09.02 | 5,699,906 | 5.65% | 5,699,906 | 5.65% | - | 0.00% | - | 0.00% | Acer Inc., Operation and Investment Management Business Section, General Manager<br>M.S. of Electrical Engineering and M.B.A., University of California<br>B.S., Department of Electrophysics, National Chiao Tung University | Dragon Investment Fund I Co., Ltd., Representative of Legal Person as Director<br>Apacer Technology Inc., Director<br>Cyber Power Systems, Inc., Director<br>iD SoftCapital Inc., Director<br>RDC Semiconductor Co., Ltd., Director<br>Formosa21, Inc., Director<br>Stans Foundation, Director<br>JoiiUp Technology Inc., Director<br>EcoLumina Technologies Inc., Director<br>YODN Lighting Corp., Chairman | None | None | None |
| Director and General manager | Republic of China | Chang Chia-kun | 2018.5.30 | Male | 3 years | 2012.06.13 | 196,825 | 0.20% | 196,825 | 0.20% | 81,740 | 0.08% | - | 0.00% | Apacer Technology Inc., President<br>Apacer Memory America Inc., President<br>M.B.A., Baruch College, CUNY<br>M.E.E., NYU Polytechnic School of Engineering | Apacer Technology Inc., Director/President<br>Apacer Technology B.V., Director<br>Apacer Technology Japan Corp., Director<br>Apacer Electronic (Shanghai) Co., Ltd, Representative of Legal Person as Director | None | None | None |

| Title | Nationality or country of registration | Name | Date of election | Gender | Term | Date of first election | Shares held at time of election | | Current shares held | | Current shares held by spouse or minor children | | Shares held in the name of others | | Educational background and experience | Concurrent posts in Apacer or other companies | Other supervisors, directors or supervisors in a spousal relationship or within the second degree of kinship | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Number of shares | Shareholding ratio | Number of shares | Shareholding ratio | Number of shares | Shareholding ratio | Number of shares | Shareholding ratio | | | Title | Name | Relation |
| Director | Republic of China | Haydn Hsieh | 2018.5.30 | Male | 3 years | 2015.6.15 | - | 0.00% | - | 0.00% | - | 0.00% | - | 0.00% | Wistron Corp., Senior Vice President<br>Acer Inc., Portable Computer Business Group, General Manager and Senior Vice President<br>Entrepreneur Class, National Chengchi University<br>Department of Electrical Engineering, Tatung University | Wistron NeWeb Corporation, Chairman and CEO<br>AOPEN Inc., Representative of Legal Person as Director<br>aEnrich Technology Corp., Director<br>Raydium Semiconductor Corporation, Independent Director<br>Apacer Technology Inc., Director | None | None | None |
| Director | Republic of China | George Huang | 2018.5.30 | Male | 3 years | 2018.5.30 | 1,207,041 | 1.20% | 1,207,041 | 1.20% | - | 0.00% | - | 0.00% | Acer Inc., Chairman<br>Acer Inc., CFO<br>Acer Inc., Co-founder<br>B.S., Department of Communications Engineering, National Chiao Tung University | Acer Inc., Director<br>Apacer Technology Inc., Director<br>Les enphants Co. Ltd., Director<br>Motech Industries Inc., Director<br>PChome Online Inc., Independent Director<br>BIONET Corp., Independent Director | None | None | None |
| Director | Republic of China | Phison Electronics Corp. | 2018.5.30 | N/A | 3 years<br>3 years | 2018.5.30<br>2018.5.30 | 10,050,000 | 9.96% | 10,050,000 | 9.96% | - | 0.00% | - | 0.00% | N/A | N/A | N/A | N/A | N/A |
| | Malaysia | Representative: Weng Wen-jie | | Male | | | - | 0.00% | - | 0.00% | - | 0.00% | - | 0.00% | Innolux Corporation, Senior Operating and Management Officer<br>Department of Accounting, National Cheng Kung University | Phison Electronics Corp., Assistant Manager<br>Apacer Technology Inc., Representative of Legal Person as Director<br>Lian Xu Dong Investment Corp., Representative of Legal Person as Director | None | None | None |
| Independent Director | Republic of China | Max Wu | 2018.5.30 | Male | 3 years | 2012.6.13 | 68,325 | 0.07% | 68,325 | 0.07% | - | 0.00% | - | 0.00% | Acer Inc.<br>Hua Nan Management Consulting Co., Chairman<br>InveStar Capital, Inc., Partner<br>Spring Foundation of NCTU, Chairman<br>B.S., Department of Electronics Engineering, National Chiao Tung University | Birch Venture Capital, Inc., Chairman<br>Novatek Microelectronics Corp., Director<br>YODN Lighting Corp., Director<br>Wistron NeWeb Corp., Director<br>Antec, Inc., Supervisor<br>Gigastone Corp., Independent Director<br>Apacer Technology Inc., Independent Director<br>Harvatek Corporation, Independent Director | None | None | None |

| Title | Nationality or country of registration | Name | Date of election | Gender | Term | Date of first election | Shares held at time of election | | Current shares held | | Current shares held by spouse or minor children | | Shares held in the name of others | | Educational background and experience | Concurrent posts in Apacer or other companies | Other supervisors, directors or supervisors in a spousal relationship or within the second degree of kinship | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Number of shares | Shareholding ratio | Number of shares | Shareholding ratio | Number of shares | Shareholding ratio | Number of shares | Shareholding ratio | | | Title | Name | Relation |
| Independent Director | Republic of China | Philip Peng | 2018.5.30 | Male | 3 years | 2018.5.30 | 527 | 0.00% | 527 | 0.00% | - | 0.00% | - | 0.00% | Acer Inc., Senior vice President/CFO<br>M.B.A., Department of Business Administration, National Chengchi University | AU Optronics Corp., Independent Director<br>Apacer Technology Inc., Independent Director<br>Acer Inc., Representative of Legal Person as Director<br>AOPEN Inc., Representative of Legal Person as Director<br>Wistron Corporation, Director<br>Wistron NeWeb Corp., Director<br>Wistron ITS Corp., Director<br>iD SoftCapital Inc., Director/President<br>SmartStar Technology Inc., Chairman | None | None | None |
| Independent Director | Republic of China | Hsieh Hui-chuan | 2018.5.30 | Female | 3 years | 2018.5.30 | - | 0.00% | - | 0.00% | - | 0.00% | - | 0.00% | Co-operative Assets Management Co., Ltd., President<br>China Development Asset Management Corp., President<br>China Development Industrial Bank, Department of Investment, Assistant Manager<br>AU Optronics Corp., Independent Director<br>Ph.D. in Finance, University of Houston | Darwin Precisions Corp., Independent Director<br>Apacer Technology Inc., Independent Director | None | None | None |

(2) Major shareholders of the corporate shareholders:

April 14, 2019

| Name of corporate shareholders | Major shareholders of the corporate shareholders |
|---|---|
| Phison Electronics Corp. | Investment account of Toshiba Memory Corporation in escrow at First Commercial Bank (10.06%)<br>Investment account of Kingston Technology Corporation in escrow at CTBC Bank (5.71%)<br>Employee provident fund entrusted to the investment account of Aberdeen Asset Management PLC in escrow at HSBC (3.94%)<br>Pan Jian-cheng (2.31%)<br>Yang Jun-yong (2.31%)<br>Investment account of Norges Bank in escrow at Citi Bank (1.70%)<br>Ouyang Zhi-Guang (1.70%)<br>Wu Han-wei (1.68%)<br>Investment account of Robeco Capital Growth Funds in escrow at JPMorgan (1.40%)<br>Investment account of Vanguard Total International Stock Index Fund, a series of Vanguard Star Fund, in escrow at Chase Bank (1.32%) |

(3) Major shareholders of the juristic persons which are major shareholders of the corporate shareholders:

April 14, 2019

| Name of corporate shareholders | Major shareholders of the corporate shareholders | Shareholding ratio |
|---|---|---|
| Toshiba Memory Corporation's Investment Account in escrow at First Commercial Bank | Toshiba Memory Holdings Corporation | 100% |

(4) Information on supervisors and directors

| Qualifications Name | Experience of at least 5 years and the following professional qualifications | | | Independence (Note) | | | | | | | | | | | | Number of other public companies where the member also serves on a remuneration committee |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Lecturer or higher position at a public or private university/college in the department of commerce, law, finance, accounting or any other fields related to our business | Judge, public prosecutor, attorney, certified public accountant, or any other professional or technical specialists who have passed a national examination and received a certificate in a profession necessary for our business | Work experience in commerce, law, finance, accounting or any other field necessary for our business | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| Austin Chen | | | ✓ | | | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | | 1 |
| Teddy Lu | | | ✓ | ✓ | | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | | 0 |
| Chang Chia-kun | | | ✓ | | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | | 0 |
| Haydn Hsieh | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | | 1 |
| George Huang | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2 |
| Phison Electronics Corp. Representative: Weng Wen-jie | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | | 0 |
| Max Wu | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2 |
| Philip Peng | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 1 |
| Hsieh Hui-chuan | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 1 |

Note: A director or supervisor is required to mark a "✓" in the blank below the number of any of the following requirements which he/she has satisfied during the two years before being elected and during his/her term of office.

(1) The director or supervisor is not an employee of the Company or any of its affiliates.

(2) The director or supervisor is not a director or supervisor of the Company or any of its affiliates (except for an independent director of the Company, its parent or subsidiary, or any subsidiary of its parent appointed pursuant to the Company Act or local laws and regulations).

(3) The director or supervisor is not a natural-person shareholder who holds shares, together with those held by his/her spouse or minor children or held in the name of another person, in an aggregate amount of at least 1% of the total shares issued by the Company or is one of the top-10 shareholders of the Company.

(4) The director or supervisor is not a spouse, relative within the second degree of kinship or lineal relative within the third degree of kinship, of any manager under (1) or any of the persons under (2) and (3).

(5) The director or supervisor is not a director, supervisor or employee of any corporate shareholder that directly holds at least 5% of the total shares issued by the Company, is one of the top-5 shareholders of the Company or has appointed a representative as a director or supervisor of the Company pursuant to Article 27, Paragraph 1 or 2 of the Company Act (except for an independent director of the Company, its parent or subsidiary, or any subsidiary of its parent appointed pursuant to the Company Act or local laws and regulations).

(6) The director or supervisor is not a director, supervisor or employee of any other company where more than half of its directors or voting shares are controlled by the same person (except for an independent director of the Company, its parent or subsidiary, or any subsidiary of its parent appointed pursuant to the Company Act or local laws and regulations).

(7) The director or supervisor is not a director, supervisor or employee of any other company or institution (except for an independent director of the Company, its parent or subsidiary, or any subsidiary of its parent appointed pursuant to the Company Act or local laws and regulations).

(8) The director or supervisor is not a director, supervisor, manager or shareholder holding at least 5% of the shares of any company or institution which has engaged in financial or business dealings with the Company (except where the company or institution holds at least 20% and no more than 50% of the total shares issued by the Company and is an independent director of the Company, its parent or subsidiary, or any subsidiary of its parent appointed pursuant to the Company Act or local laws and regulations).

(9) The director or supervisor is not an owner, partner, director, supervisor or manager, or a spouse thereof, of any professional, sole proprietorship, partnership, company or institution that engages in commercial, legal, financial and accounting services and which has conducted audit for the Company or any of its affiliates or has received a total amount of compensation not exceeding TWD 500,000 during the most recent two years, except where the director or supervisor is a member of any remuneration committee, public purchase review committee or special committee for mergers and acquisitions which performs its duties pursuant to the Securities and Exchange Act, Business Mergers And Acquisitions Act or other applicable laws and regulations.

(10) The director or supervisor was or is not in a spousal relationship nor a relative within the second degree of kinship.

(11) None of the circumstances under Article 30 of the Company Act applies to the director or supervisor.

(12) The director or supervisor is not elected as a government agency or juristic person or a representative thereof under Article 27 of the Company Act.

## (5) Information of the President, Vice President, Assistant Manager, and supervisors of departments and branches

April 1, 2020

| Title | Nationality | Name | Gender | Start date of office | No. of shares held | | Shares held by spouse or minor children | | Shares held in the name of others | | Educational background and experience | Concurrent posts in other companies | Managerial officers in a spousal relationship or within the second degree of kinship | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Number of shares | Shareholding ratio | Number of shares | Shareholding ratio | Number of shares | Shareholding ratio | | | Title | Name | Relation |
| Chairman and CSO | Republic of China | Austin Chen | Male | 2012.06.13 | 1,525,633 | 1.51% | 450,268 | 0.45% | - | 0.00% | Apacer Technology Inc., Chairman<br>Acer Inc., Vice President<br>M.B.A., Department of Management Science, National Chiao Tung University | Apacer Technology Inc., Chairman and CSO<br>Apacer Technology (BVI) Inc. Director<br>Darwin Precisions Corp., Independent Director<br>JoiiUp Technology Inc., Representative of Legal Person as Director<br>OtO Photonics Inc., Representative of Legal Person as Director | None | None | None |
| General manager | Republic of China | Chang Chia-kun | Male | 2014.04.01 | 196,825 | 0.20% | 81,740 | 0.08% | - | 0.00% | Apacer Technology Inc., President<br>Apacer Memory America Inc., President<br>M.B.A., Baruch College, CUNY<br>M.E.E., NYU Polytechnic School of Engineering | Apacer Technology Inc., Director/President<br>Apacer Technology B.V., Director<br>Apacer Technology Japan Corp., Director<br>Apacer Electronic (Shanghai) Co., Ltd, Representative of Legal Person as Director | None | None | None |
| Vice President | Republic of China | Victor Lin | Male | 2006.04.03 | 102,599 | 0.10% | 61,908 | 0.06% | - | 0.00% | Apacer Technology Inc., General Operational Support Division, Vice President<br>Teapo Electronic Co., Ltd., Head of the Central Infrastructure<br>ACERTWP Information Co., Ltd., CFO<br>M.B.A., College of Management, National Taiwan University | — | None | None | None |
| CFO | Republic of China | Lai Zi-wen | Female | 2013.07.14 | - | 0.00% | - | 0.00% | - | 0.00% | Apacer Technology Inc., Finance Management Division, CFO<br>Edison Opto Corp., Accounting Manager<br>Taiwan Cement Co., Ltd., Project Leader<br>Teapo Electronic Co., Ltd., Assistant Financial Manager<br>M.B.A., Department of Business Administration, National Cheng Kung University | Apacer Technologies Pvt. Ltd., Director<br>Apacer Electronic (Shanghai) Co., Ltd, Representative of Legal Person as Director<br>Shenzhen Qinjing Technology Co., Ltd., Representative of Legal Person as Director<br>HONG YU Technology Co., Ltd., Representative of Legal Person as Director | None | None | None |

| Title | Nationality | Name | Gender | Start date of office | No. of shares held | | Shares held by spouse or minor children | | Shares held in the name of others | | Educational background and experience | Concurrent posts in other companies | Managerial officers in a spousal relationship or within the second degree of kinship | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Number of shares | Shareholding ratio | Number of shares | Shareholding ratio | Number of shares | Shareholding ratio | | | Title | Name | Relation |
| Senior manager of center | Republic of China | Luo Xue-ru | Female | 2018.08.01 | 8,854 | 0.01% | 1,869 | 0.00% | - | 0.00% | Apacer Technology Inc., Consumer Product Application BU, Manager<br>Apacer Technology Inc., General Operational Resource Division, COO<br>EMBA, National Chengchi University | HONG YU Technology Co., Ltd., Representative of Legal Person as Director | None | None | None |
| Senior manager of center | Republic of China | Huang Mei-hui | Female | 2018.08.01 | 9,279 | 0.01% | - | 0.00% | - | 0.00% | Apacer Technology Inc., Vertical Market Application BU, Manager<br>Apacer Technology Inc., Asia-Pacific and Taiwan Sales & Marketing Division, Manager<br>B.B.A., Department of Business Administration, Tunghai University | — | None | None | None |

(6) Remuneration for directors, supervisors, President and Vice Presidents in the most recent year

A. Remuneration for directors (including independent directors)

Unit: TWD

| Title | Name | Remuneration | | | | | | | | The total amount of A, B, C and D in net income after tax | | Remuneration for part-time employees | | | | | | | | The total amount of A, B, C, D, E, F and G in net income after tax (%) | | Remuneration from reinvestment businesses other than subsidiaries |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Remuneration (A) | | Retirement pension (B) | | Director remuneration (C) | | Business execution fee (D) | | | | Salary, bonus and special allowance (E) | | Retirement pension (F) | | Employee remuneration (G) | | | | | | |
| | | Apacer | All companies in financial report | Apacer | All companies in financial report | Apacer | All companies in financial report | Apacer | All companies in financial report | Apacer | All companies in financial report | Apacer | All companies in financial report | Apacer | All companies in financial report | Apacer | | All companies in financial report | | Apacer | All companies in financial report | |
| | | | | | | | | | | | | | | | | Cash dividend | Share dividend | Cash dividend | Share dividend | | | |
| Chairman | Austin Chen | 5,000,000 | 5,000,000 | - | - | 7,323,409 | 7,323,409 | 430,000 | 430,000 | 3.39% | 3.39% | 14,490,000 | 14,490,000 | 108,000 | 108,000 | 4,820,000 | - | 4,820,000 | - | 8.54% | 8.54% | - |
| Director | Chang Chia-kun | | | | | | | | | | | | | | | | | | | | | |
| Director | Teddy Lu | | | | | | | | | | | | | | | | | | | | | |
| Director | Haydn Hsieh | | | | | | | | | | | | | | | | | | | | | |
| Director | George Huang | | | | | | | | | | | | | | | | | | | | | |
| Director | Phison | | | | | | | | | | | | | | | | | | | | | |
| Independent Director | Max Wu | | | | | | | | | | | | | | | | | | | | | |
| Independent Director | Philip Peng | | | | | | | | | | | | | | | | | | | | | |
| Independent Director | Hsieh Hui-chuan | | | | | | | | | | | | | | | | | | | | | |

Salary Range Table

| Salary range for directors of Apacer | Name of director | | | |
|---|---|---|---|---|
| | The total amount of the first four remuneration items (A+B+C+D) | | The total amount of the first seven remuneration items (A+B+C+D+E+F+G) | |
| | Apacer | All companies in financial report | Apacer | All companies in financial report |
| Less than 1,000,000 dollars | | | | |
| 1,000,000 dollars (incl.) ~ 2,000,000 dollars (not incl.) | Chang Chia-kun, Teddy Lu, Haydn Hsieh, George Huang, Phison, Max Wu, Philip Peng, Hsieh Hui-chuan | Chang Chia-kun, Teddy Lu, Haydn Hsieh, George Huang, Phison, Max Wu, Philip Peng, Hsieh Hui-chuan | Teddy Lu, Haydn Hsieh, George Huang, Phison, Max Wu, Philip Peng, Hsieh Hui-chuan | Teddy Lu, Haydn Hsieh, George Huang, Phison, Max Wu, Philip Peng, Hsieh Hui-chuan |
| 2,000,000 dollars (incl.) ~ 3,500,000 dollars (not incl.) | Austin Chen | Austin Chen | | |
| 3,500,000 dollars (incl.) ~ 5,000,000 dollars (not incl.) | | | | |
| 5,000,000 dollars (incl.) ~ 10,000,000 dollars (not incl.) | | | | |
| 10,000,000 dollars (incl.) ~ 15,000,000 dollars (not incl.) | | | Austin Chen, Chang Chia-kun | Austin Chen, Chang Chia-kun |
| 15,000,000 dollars (incl.) ~ 30,000,000 dollars (not incl.) | | | | |
| 30,000,000 dollars (incl.) ~ 50,000,000 dollars (not incl.) | | | | |
| 50,000,000 dollars (incl.) ~ 100,000,000 dollars (not incl.) | | | | |
| More than 100,000,000 dollars | | | | |
| Total | 9 (Independent) Directors | 9 (Independent) Directors | 9 (Independent) Directors | 9 (Independent) Directors |

B. Remuneration for supervisors

Unit: TWD

| Title | Name | Supervisor remuneration | | | | | | The total amount of A, B and C in net income after tax (%) | | Remuneration from reinvestment businesses other than subsidiaries |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Remuneration (A) | | Remuneration (B) | | Business execution fee (C) | | | | |
| | | Apacer | All companies in financial report | Apacer | All companies in financial report | Apacer | All companies in financial report | Apacer | All companies in financial report | |
| - | - | - | - | - | - | - | - | - | - | - |

Salary Range Table

| Salary range for supervisors of Apacer | Supervisor name | |
|---|---|---|
| | Total amount of the first three remuneration items (A+B+C) | |
| | Apacer | All companies in financial report |
| Less than 1,000,000 dollars | - | - |
| 1,000,000 dollars (incl.) ~ 2,000,000 dollars (not incl.) | - | - |
| 2,000,000 dollars (incl.) ~ 3,500,000 dollars (not incl.) | - | - |
| 3,500,000 dollars (incl.) ~ 5,000,000 dollars (not incl.) | - | - |
| 5,000,000 dollars (incl.) ~ 10,000,000 dollars (not incl.) | - | - |
| 10,000,000 dollars (incl.) ~ 15,000,000 dollars (not incl.) | - | - |
| 15,000,000 dollars (incl.) ~ 30,000,000 dollars (not incl.) | - | - |
| 30,000,000 dollars (incl.) ~ 50,000,000 dollars (not incl.) | - | - |
| 50,000,000 dollars (incl.) ~ 100,000,000 dollars (not incl.) | - | - |
| More than 100,000,000 dollars | - | - |
| Total | - | - |

C. Remuneration for President and Vice President

Unit: TWD

| Title | Name | Salary (A) | | Retirement pension (B) | | Bonus and special allowance (C) | | Employee remuneration (D) | | | | The total amount of A, B, C and D in net income after tax (%) | | Remuneration from reinvestment businesses other than subsidiaries |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Apacer | All companies in financial report | Apacer | All companies in financial report | Apacer | All companies in financial report | Apacer | | All companies in financial report | | Apacer | All companies in financial report | |
| | | | | | | | | Cash amount | Share amount | Cash amount | Share amount | | | |
| General manager | Chang Chia-kun | 7,215,000 | 7,215,000 | 216,000 | 216,000 | 6,325,000 | 6,325,000 | 3,920,000 | - | 3,920,000 | - | 4.69% | 4.69% | - |
| Vice President | Victor Lin | | | | | | | | | | | | | |

Salary Range Table

| Salary range for the President and Vice President of Apacer | President and Vice President name | |
|---|---|---|
| | Apacer | All companies in financial report |
| Less than 1,000,000 dollars | - | - |
| 1,000,000 dollars (incl.) ~ 2,000,000 dollars (not incl.) | - | - |
| 2,000,000 dollars (incl.) ~ 3,500,000 dollars (not incl.) | - | - |
| 3,500,000 dollars (incl.) ~ 5,000,000 dollars (not incl.) | - | - |
| 5,000,000 dollars (incl.) ~ 10,000,000 dollars (not incl.) | Victor Lin | Victor Lin |
| 10,000,000 dollars (incl.) ~ 15,000,000 dollars (not incl.) | Chang Chia-kun | Chang Chia-kun |
| 15,000,000 dollars (incl.) ~ 30,000,000 dollars (not incl.) | - | - |
| 30,000,000 dollars (incl.) ~ 50,000,000 dollars (not incl.) | - | - |
| 50,000,000 dollars (incl.) ~ 100,000,000 dollars (not incl.) | - | - |
| More than 100,000,000 dollars | - | - |
| Total | 2 (Vice) Presidents | 2 (Vice) Presidents |

D. Names of the managers distributing employee remunerations and the distributing status

Unit: TWD

| | Title | Name | Share amount | Cash amount | Total | The total amount in net income after tax (%) |
|---|---|---|---|---|---|---|
| **General manager** | Chairman & CSO | Austin Chen | 0 | 8,650,0000 | 8,650,0000 | 2.30% |
| | General manager | Chang Chia-kun | | | | |
| | Vice President | Victor Lin | | | | |
| | CFO | Lai Zi-wen | | | | |
| | Senior manager of center | Luo Xue-ru | | | | |
| | Senior manager of center | Huang Mei-hui | | | | |

E. Comparison and analysis of the total remuneration as a percentage of net income stated in the financial report of Apacer or individual financial reports and paid by Apacer and all the companies in the consolidated report to each of Apacer's directors, supervisors, President, and Vice President in the most recent 2 fiscal years, and description of the policies, standards, and portfolios for payment of the remuneration, the procedures for determining the remuneration, and the association with the operation performance and future risk exposure.

| Title | The total amount of 2019 remuneration in net income after tax | The total amount of remuneration of all the companies in 2019 consolidated report in net income after tax | The total amount of 2018 remuneration in net income after tax (%) | The total amount of remuneration of all the companies in 2018 consolidated report in net income after tax (%) |
|---|---|---|---|---|
| Director | 8.08% | 8.08% | 7.82% | 7.82% |
| Supervisor | | | | |
| President and Vice President | | | | |

Remuneration for the directors and supervisors is appropriated pursuant to our "Articles of Incorporation" and is paid according to such Articles of Incorporation when there are profits in our final account; the salary structure for the President and Vice President comprises a base salary, meal allowance, and transportation allowance. The salary is determined pursuant to the internal regulations based on the educational background, work experience, and performance.

3. Corporate governance

(1) Information on the operation of the Board of Directors

The Board of Directors held five meetings in 2019. The presence and attendance of the directors are described below:

| Title | Name | Actual number of persons present (attended) | Number of meetings attended by proxy | Actual Presence (attendance) rate (%) | Remarks |
|---|---|---|---|---|---|
| Chairman | Austin Chen | 5 | 0 | 100 | |
| Director | Teddy Lu | 5 | 0 | 100 | |
| Director | Chang Chia-kun | 5 | 0 | 100 | |
| Director | Haydn Hsieh | 5 | 0 | 100 | |
| Director | George Huang | 3 | 2 | 60 | |
| Director | Phison Electronics Corp. Representative: Weng Wen-jie | 5 | 0 | 100 | |
| Independent Director | Max Wu | 5 | 0 | 100 | |
| Independent Director | Philip Peng | 5 | 0 | 100 | |
| Independent Director | Hsieh Hui-chuan | 5 | 0 | 100 | |

Other matters to be specified:

1. Where any of the following circumstances occurs to any meeting of the Board of Directors, the date, term and proposal of the meeting as well as the opinions of all the independent directors and actions taken by the Company on the opinions shall be specified:

(1) The matters referred to in Article 14-3 of the Securities and Exchange Act:

| Date | Meeting | Proposal | Independent director's opinion | The Company's action on the opinion |
|---|---|---|---|---|
| 2019.2.21 | 1st meeting in 2019 | Proposal for amendment of the "Procedures for Acquisition or Disposal of Assets" was adopted. | None | None |
| 2019.4.19 | 2nd meeting in 2019 | Philip Tang and Grace Chen, the CPAs of KPMG Taiwan, were commissioned to audit and certify the financial statements of the Company, and a resolution concerning their remuneration was adopted. | None | None |
| 2019.12.17 | 5th meeting in 2019 | Proposal for amendment of the "Internal Control System" and "Rules for Implementation of the Internal Audit System" for financing circulation of the Company was adopted. | None | None |

(2) In addition to the matters mentioned above, any resolution of the Board of Directors for which dissent or reservation has been expressed by any independent director and where such dissent or reservation has been recorded in the minutes or any written statement: None.

2. Where the implementation status of recusal bearing on the interest of a director is involved, the name of the director, proposal, reasons for the recusal, and participation in the voting shall be described:

| Date | Meeting | Proposal | Resolution |
|---|---|---|---|
| 2019.2.21 | 1st meeting in 2019 | Proposal for adjustment of salary for managers in 2019 was adopted. | The proposal was approved by a resolution of the directors, excluding Austin Chen and Chang Chia-kun, who did not participate in the discussion and voting due to personal interests, present at the meeting of the Board of Directors after consultation with the independent directors. |
| 2019.12.17 | 5th meeting in 2019 | Proposal for distribution of the performance bonus for managers in 2019 was adopted. | The proposal was approved by a resolution of the directors, excluding Austin Chen and Chang Chia-kun, who did not participate in the discussion and voting due to personal interests, present at the meeting of the Board of Directors after consultation with the independent directors. |
| 2019.12.17 | 5th meeting in 2019 | Proposal for distribution of the remuneration for managers in 2019 was adopted. | The proposal was approved by a resolution of the directors, excluding Austin Chen and Chang Chia-kun, who did not participate in the discussion and voting due to personal interests, present at the meeting of the Board of Directors after consultation with the independent directors. |

3. A TWSE/TPEx listed company shall disclose the interval, period, scope, method and items of evaluation for the self-evaluation of its board of directors, and shall specify the status of evaluation of the board of directors in Schedule 2.

| Interval of evaluation | Period of evaluation | Scope of evaluation | Method of evaluation | Items of evaluation |
|---|---|---|---|---|
| Annual | Evaluation of the performance of the Board of Directors from Jan. 1 to Dec. 31, 2019 | Evaluation of the performance of the Board of Directors, (self or peer) evaluation of the performance of directors, and evaluation of the performance of functional committees | Self-evaluation of the Board of Directors, directors and functional committees | 1. Evaluation of the performance of the Board of Directors<br>(1) Strategic guidance and participation in the Board of Directors.<br>(2) Improvement of the quality of decision-making by the Board of Directors.<br>(3) Composition and structure of the Board of Directors.<br>(4) Election and continued education of directors.<br>(5) Internal control.<br>2. (Self or peer) evaluation of the performance of directors<br>(1) Understanding of the objectives and missions of the Company.<br>(2) Knowledge of the responsibilities of directors.<br>(3) Strategic guidance and participation in the Board of Directors.<br>(4) Internal relationship management and communication.<br>(5) Professional knowledge and continued education of directors.<br>6. Internal control.<br>3. Evaluation of the performance of functional committees<br>(1) Participation in functional committees.<br>(2) Knowledge of the responsibilities of functional committees.<br>(3) Improvement of the quality of decision-making by functional committees.<br>(4) Composition and election of the members of functional committees.<br>(5) Internal control. |

4. Evaluation of the goal and implementation status with respect to enhancement of the function of the Board of Directors in the current and most recent years:
   (1) To meet the requirements of corporate governance and improve the functions of the Board of Directors, the Company established the “Guidelines for Evaluating the Performance of the Board of Directors” in 2019 to conduct evaluation of the performance of the Board of Directors annually. Evaluation of the performance of the Board of Directors in 2019 was completed through self-evaluation of the directors.
   (2) More information transparency: The Company is committed to transparent operations and pays attention to the rights and interests of its shareholders. On the Company’s website, related information is provided in Chinese and English under “Investor Relations”, “CSR” and “Corporate Governance”. Important decisions of the Board of Directors are published regularly, and investor conferences are held on a periodical basis.
   (3) Director liability insurance: To protect the directors and managers from the risks they bear when conducting business, the Company purchases directors and managers’ liability insurance for the directors and managers annually, and regularly reviews the insurance policies to ensure certain insurance limits and coverage requirements. In this regard, the Company regularly reports to the Board of Directors.
   (4) The Audit Committee and Remuneration Committee are formed by all the independent directors of the Company to assist the Board of Directors in performing its supervisory duties. The chairpersons of the committees report regularly to the Board of Directors regarding their operations.
   (5) Education of directors: The Company encourages continued education of the directors and regularly recommends courses for the directors to keep gaining new knowledge. The total education hours of the directors in 2019 were 57.

(2) Operation status of the Audit Committee or participation of supervisors in the Board of Directors

The Audit Committee held five meetings in 2019. The attendance of its members is described below:

| Title | Name | Actual number of persons attended | Actual attendance rate (%) | Remarks |
|---|---|---|---|---|
| Chairperson | Max Wu | 5 | 100 | |
| Member | Philip Peng | 5 | 100 | |
| Member | Hsieh Hui-chuan | 5 | 100 | |

The Audit Committee of the Company is composed of all the independent directors and holds meetings at least quarterly. Matters subject to review by the Audit Committee within its authority include:

1. Establishment or amendment of the internal control system in accordance with Article 14-1 of the Securities and Exchange Act.
2. Evaluation of the effectiveness of the internal control system.
3. Establishment or amendment of the procedures for major financial and business activities of acquisition or disposal of assets, derivatives trading, loaning funds to others and providing endorsements or guarantees to others.
4. Matters involving the personal stakes of directors.
5. Major transactions of assets or derivatives.
6. Major loans, endorsements or guarantees.
7. Offering, issuance or private placement of equity securities.
8. Commissioning or dismissal of, or remuneration for CPAs.
9. Appointment/Dismissal of the financial or accounting manager or chief internal auditor.
10. Annual and semi-annual financial reports.
11. Other important matters specified by the Company or competent authorities.

◎ Review of financial reports

The Board of Directors prepared the business report, financial statements and proposal on profit distribution for FY 2018. An audit report for the financial statements was prepared jointly by Philip Tang and Grace Chen, CPAs of KPMG Taiwan. The review of the business report, financial statements and proposal on profit distribution above by the Audit Committee did not find any inconsistencies.

◎ Commissioned CPAs

The independence and competency of the CPAs were evaluated by the Audit Committee and Board of Directors on April 19, 2019. The CPAs are in no way related to the Company, and have no business or financial interests with the Company. The CPAs have remained impartial and objective in providing their professional services, and a statement of independence has been obtained from KPMG Taiwan. Therefore, the requirements for independence and competency have been fulfilled.

Other matters to be specified:

1. Where any of the following circumstances occur to the operation of the Audit Committee, the date, term and proposal of the Board of Directors meeting as well as the Audit Committee resolution and how the company manage the Committee's opinions shall be described:

   (1) The matters referred to in Article 14-5 of the Securities and Exchange Act:

| Date | Meeting | Proposal | Audit Committee resolution | The Company's action on the Committee's opinion |
|---|---|---|---|---|
| 2019.2.21 | 1st meeting in 2019 | The business report and self-prepared financial statements of FY 2018 were adopted. | Approved by all of the Audit Committee members | Approved by all of the directors present |
| 2019.2.21 | 1st meeting in 2019 | Proposal to submit the "Declaration on the Internal Control System" for FY 2018 was adopted. | Approved by all of the Audit Committee members | Approved by all of the directors present |
| 2019.2.21 | 1st meeting in 2019 | Proposal for amendment of the "Procedures for Acquisition or Disposal of Assets" was adopted. | Approved by all of the Audit Committee members | Approved by all of the directors present |
| 2019.4.19 | 2nd meeting in 2019 | Philip Tang and Grace Chen, the CPAs of KPMG Taiwan, were commissioned to audit and certify the financial statements of the Company, and a resolution concerning their remuneration was adopted. | Approved by all of the Audit Committee members | Approved by all of the directors present |
| 2019.8.13 | 3rd meeting in 2019 | The quarterly consolidated financial statements for the second quarter of 2019 were adopted. | Approved by all of the Audit Committee members | Approved by all of the directors present |
| 2019.12.17 | 5th meeting in 2019 | Proposal for amendment of the "Internal Control System" and "Rules for Implementation of the Internal Audit System" for financing circulation of the Company was adopted. | Approved by all of the Audit Committee members | Approved by all of the directors present |

   (2) In addition to the matters mentioned above, any resolution approved by more than two-thirds of all the directors but not approved by the Audit Committee: None.

2. Where the implementation status of recusal bearing on the interest of an independent director is involved, the name of the independent director, proposal, reasons for the recusal, and participation in the voting shall be described: None.

3. Communication of independent directors with the chief internal auditor and CPAs (including important matters, methods and results with respect to communication of the company finances and operation status):

   (1) Communication of the independent directors with the chief internal auditor

| Date | Audit Committee meeting | Communications with the chief internal auditor | Results |
|---|---|---|---|
| 2019.2.21 | 1st meeting in 2019 | • Review of the internal audit report | Acknowledged with no other suggestions. |
| | | Review of the Declaration on the Internal Control System | 1. Adopted and submitted to the Board of Directors for a resolution.<br>2. Acknowledged with no other suggestions. |
| 2019.4.19 | 2nd meeting in 2019 | • Review of the internal audit report | Acknowledged with no other suggestions. |
| 2019.8.13 | 3rd meeting in 2019 | • Review of the internal audit report | Acknowledged with no other suggestions. |

| Date | Audit Committee meeting | Communications with the chief internal auditor | Results |
|---|---|---|---|
| 2019.10.25 | 4th meeting in 2019 | • Review of the internal audit report | Acknowledged with no other suggestions. |
| | | • Review of the internal audit plan for FY 2020 | 1. Adopted and submitted to the Board of Directors for a resolution.<br>2. Acknowledged with no other suggestions. |
| 2019.12.17 | 5th meeting in 2019 | • Review of the internal audit report | Acknowledged with no other suggestions. |
| | | • Review of the amendment of the "Internal Control System" and "Rules for Implementation of the Internal Audit System" | 1. Adopted and submitted to the Board of Directors for a resolution.<br>2. Acknowledged with no other suggestions. |

(2) Communication of the independent directors with the CPAs

| Date | Audit Committee meeting | Communications with the CPAs | Results |
|---|---|---|---|
| 2019.08.13 | 3rd meeting in 2019 | 1. Responsibility of the reviewer for review of the interim financial report<br>2. Independence<br>3. Scope of review and types of reports issued<br>4. Review findings<br>5. Annual audit plan/Key audit matters<br>6. Important updates in laws and regulations | Acknowledged with no other suggestions. |

(3) Corporate governance and differences from the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons:

| Item | Description | | | Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| 1. Has your company established and disclosed its corporate governance best practice principles pursuant to the "Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies"? | V | | We have established the "Corporate Governance Best Practice Principles" pursuant to the "Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies" and disclosed these on our website. | We are in compliance with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies. |
| 2. Shareholding structure and shareholder's equity<br>(1) Does your company have an internal procedure and act accordingly for handling shareholders' suggestions, doubts, disputes, and lawsuits? | V | | (1) To protect the interests of the shareholders, we have designated personnel to deal with suggestions, doubts and disputes of the shareholders. We may accept suggestions and we deal with disputes depending on the type of the problem, and act according to the procedure. | We are in compliance with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies. |

| Item | Description | | | Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| (2) Does your company have lists of the major shareholders who actually control the company and the persons who have ultimate control of the major shareholders? | V | | (2) We have lists of the major shareholders who actually control the Company and the persons who control the major shareholders to ensure the stability of the business management rights. | |
| (3) Does your company have a firewall mechanism in place to control the risks between the company and its affiliates? | V | | (3) We have established the internal “Regulations Governing the Transactions among Related Parties, Specific Companies, and Group Enterprises”, “Subsidiary Management Regulations”, “Procedures for Endorsements/Guarantees”, “Procedures for Loaning Funds to Others”, and “Procedures for Acquisition or Disposal of Assets” to establish appropriate risk control mechanism and firewall. The auditors supervise the implementation on a regular basis. | |
| (4) Does your company have internal regulations to prohibit insiders of the company from using undisclosed information in the market to trade securities? | V | | (4) We have established the internal control regulations of “Management Procedures for Handling Material Inside Information and Prevention of Insider Trading” and “Procedures for Ethical Management and Guidelines for Conduct” to prohibit insiders of the company from using information not open to the market to trade securities. Promotions are executed to the insiders and employees of the company. | |

| Item | Description | | | Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| 3. Responsibilities of the Board of Directors and its formation<br>(1) Does your company have and implement a policy of diversification for the composition of the Board of Directors? | V | | (1) Our "Corporate Governance Best Practice Principles" specifies a policy of diversification for the composition of our Board of Directors. The relevant principles are disclosed on our website:<br>A. The members of our Board of Directors have diverse professional backgrounds and experience, which help us achieve the objectives of improving our operating performance and the overall benefits of shareholder values.<br>B. To ensure a diverse composition of our Board of Directors, its members consist of nine directors with rich experience in various professions, as well as three independent directors (accounting for 33.33%). The members come from professional backgrounds in business management, accounting, finance and engineering technology. With different professional backgrounds, they possess skills in accounting and financial analysis, business management, venture capital, engineering technology, leadership and decision-making that demonstrate diversity and complementarity. Such professional backgrounds and industrial experience have made it possible for us to effectively implement the above-mentioned strategies for management and future development.<br>C. Gender equality in the composition of our Board of Directors is a management objective pursued by the policy of diversification of its members, professional backgrounds and industrial experience. Therefore, a female independent director (accounting for 11.11% of all the directors) joined the Board of Directors in 2018.<br>D. Implementation of diversification policy for the composition of the Board of Directors: | (1) We are in compliance with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies. |

| Item | Description | | | Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |

| Core items for diversification / Name of director | Basic qualifications | | Professional background | Industrial experience | | | | |
|---|---|---|---|---|---|---|---|---|
| | Nationality | Gender | | Accounting and financial analysis | Business management | Venture capital | Engineering technology | Leadership and decision-making skills |
| Austin Chen | Republic of China | Male | Management | | ✓ | | ✓ | ✓ |
| Teddy Lu | Republic of China | Male | Engineering, management | | ✓ | ✓ | ✓ | ✓ |
| Chang Chia-kun | Republic of China | Male | Engineering, management | | ✓ | | ✓ | ✓ |
| Haydn Hsieh | Republic of China | Male | Engineering, management | | ✓ | | ✓ | ✓ |
| George Huang | Republic of China | Male | Engineering, finance | ✓ | ✓ | | ✓ | ✓ |
| Phison Electronics Corp. Representative: Weng Wen-jie | Malaysia | Male | Accounting | ✓ | | | ✓ | ✓ |
| Max Wu | Republic of China | Male | Engineering | | ✓ | ✓ | ✓ | ✓ |
| Philip Peng | Republic of China | Male | Management, finance | ✓ | ✓ | ✓ | ✓ | ✓ |
| Hsieh Hui-chuan | Republic of China | Female | Finance | ✓ | ✓ | | ✓ | ✓ |

| Item | Description | | | Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| (2) Does your company voluntarily establish other functional committees similar to the Remuneration Committee and Audit Committee set up pursuant to the relevant laws and regulations? | V | | (2) We have formed the Remuneration Committee and Audit Committee and established the "Organizational Rules of the Special Committee for Mergers and Acquisitions" as a basis for the establishment of a special committee for mergers and acquisitions in the future. We have also formed the CSR Committee, which regularly reports its status and results of operation to the Board of Directors and President. | (2) Assessment of the necessity for additional functional committees with reference to the business operation status and scale in the future. |
| (3) Does your company have guidelines for evaluating the performance of the Board of Directors and conduct regular performance evaluation every year? Does your company submit the results of the performance evaluation to the Board of Directors? Are the results used as the basis for the remuneration and nomination for re-election of individual directors? | | V | (3) We established the "Guidelines for Evaluating the Performance of the Board of Directors" in 2019 to conduct annual evaluation of the performance of the Board of Directors and submit the evaluation results to the Board of Directors. Evaluation of the performance of the Board of Directors in 2019 was completed through self-evaluation of the directors. | (3) To be established. |

| Item | Description | | | Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| (4) Does your company assess the independence of the CPAs on a regular basis? | V | | (4) We assess CPAs for their independence every year pursuant to the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and with reference to the The Norm of Professional Ethics for Certified Public Accountant of the Republic of China No. 10. Improvement assessment items are listed below:<br>A. There is no direct or material indirect financial interest or significant close business relationship<br>B. No member of the audit team is currently, or was within the recent two years, a director, supervisor, or managerial office of the Company, or in a position to exert significant influence on audit engagement<br>C. Non-audit service does not have direct influence on any important audit items<br>D. No promotion or brokerage of the stocks or other securities issued by the Company exists<br>E. No kinship exists between a member of the audit team and any director, supervisor, or managerial office of the Company, or any person of the Company who is in a position to exert significant influence on audit engagement<br>F. No former partner acts as a director, supervisor, or managerial office of the Company or is in a position to exert significant influence on audit engagement within one year after he/she left his/her office.<br>We regularly submit self-evaluation results and independence statements of the CPAs to the Board of Directors for discussion every year. The replacement of our CPAs is conducted pursuant to relevant regulations. The evaluation results of the most recent two years was completed on December 13, 2018 and April 19, 2019 respectively. | (4) We are in compliance with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies. |

| Item | Description | | | Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| 4. Does your TWSE/TPEx-listed company designate competent and an appropriate number of corporate governance personnel along with a chief corporate governance officer responsible for related matters (including, but not limited to, providing information required by directors and supervisors to perform their duties, assisting directors and supervisors in compliance, handling matters related to the Board of Directors and shareholders' meetings and preparing minutes of the Board of Directors and shareholders' meetings)? | V | | We established the "CSR Committee" in 2015, which has a subordinate "Working Group on Corporate Governance" headed by the CFO. The CFO possesses more than three years of management experience in units of financial, stock affairs and conference services in a public company. The Working Group on Corporate Governance is responsible for planning and executing corporate governance matters, providing information required for directors to perform their duties, assisting the directors to observe laws and regulations and handling matters related to the Board of Directors and shareholders' meetings in accordance with the laws. The implementation status of business in FY 2019 includes the following matters:<br>1. Regular arrangement of further education for directors and provision of information required for directors to perform their duties and related to the latest legal development relevant to operation of the Company to help directors observe laws and regulations.<br>2. Assisting with the meeting procedure of the Board of Directors and the shareholders and compliance matters of the resolutions.<br>3. Maintaining investor relations.<br>4. Other matters referred to in the Articles of Incorporateion or contracts. | We are in compliance with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies. |

| Item | Description | | | Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| 5. Does your company establish channels for communication with stakeholders (including but not limited to shareholders, employees, customers, and suppliers), design special web pages for the stakeholders on the website, and appropriately respond to important CSR issues concerned about by the stakeholders? | V | | We have set up appropriate channels for communication with upstream and downstream vendors, banks, investors, and other stakeholders. For investors, we set up a special shareholder service and investor relationship mailbox and designated personnel for dealing with related matters. We also disclose related information on our website; management-labor meetings, complaint systems, and internal information networks are set up for the employees; regular production and sales activities are held for vendors on a regular basis. The "Contact Us" page is available on our website for such information as customer relations, public relation/investor relations, supplier relations, and product development. This provides channels for stakeholders to communicate with us in different circumstances. Special web pages for stakeholders are available on our website. | We are in compliance with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies. |
| 6. Does your company commission a professional registrar to deal with matters related to the shareholders' meeting? | V | | We have commissioned KGI Securities Co. Ltd., Stock Administration, to handle these affairs. | We are in compliance with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies. |
| 7. Disclosure of information<br>(1) Does your company have a website to disclose the financial and corporate governance information of the company? | V | | (1) Our website: (http://www.apacer.com/).<br>We disclose information about our business, financial status, and implementation of corporate governance on our website. | We are in compliance with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies. |

| Item | Description | | | Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| (2) Does your company adopt other information disclosing methods (such as building an English website, designating a person for collection and disclosure of information, implementing a spokesperson system, and publishing the process of investor conferences on the website)? | V | | (2) We have a website to provide relevant information in Chinese and English as a reference for shareholders and stakeholders, and our CFO, Ms. Lai Zi-wen, to act as the spokesperson and our President, Mr. Chang Chia-kun, to act as the deputy spokesperson. A business marketing division is set up to maintain communication with the media. At least one investor conference is held every year and the process is published on our website. All the important information that may affect the shareholders and stakeholders is disclosed appropriately in a timely manner. | |
| (3) Does your company publish and file its annual financial report within two months after the end of a fiscal year? Does your company publish and file the Q1, Q2 and Q3 financial reports and monthly operating performance before the required time limit? | V | | (3) Our financial reports and monthly operating performance are published and filed within the required time limits in accordance with Article 36 of the Securities and Exchange Act. Our 2019 financial report was published and filed within two months after the end of the fiscal year, and our Q1, Q2 and Q3 financial reports and monthly operating performance were published and filed before the required time limit. | |

| Item | Description | | | Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| 8. Does your company have additional important information that is helpful to understand the operation of the corporate governance (including but not limited to the interests and care of employees, investor relationship, supplier relationship, rights of stakeholders, further education of directors and supervisors, and implementation of risk management policies and measurement criteria)? | V | | (1) Interests and care of employees:<br>In addition to formation of the Supervisory Committee of Labor Retirement Reserve and arrangement of labor insurance, national health insurance and group insurance, we have an Employee Welfare Committee to complete employee welfare measurements and ensure the retirement system. Existing welfare measures include marriage allowance, maternity allowance, funeral allowance, consolatory hospitalization bonus, birthday bonus, and subvention for the clubs and recreational activities of the employees.<br>(2) Investor relationship:<br>We have a spokesperson, a deputy spokesperson, and a designated unit for investor relations. The contact information of the unit is made public and investors can give feedback at any time. The communication between us and our investors is enhanced and the transparency of our financial status and cooperate governance is improved to create a better image of the Company.<br>(3) Supplier relationship:<br>We always maintain good relations with our suppliers and protect the interests of both parties on a basis of mutual benefit and trust.<br>(4) Rights of stakeholders:<br>Stakeholders can communicate with us and give us advices.<br>(5) Further education of directors and supervisors<br>To enhance the knowledge of corporate governance, we have our directors and supervisors (including independent directors and supervisors) take relevant courses in the continuing education systems or professional institutions recognized in the "Directions for the Implementation of Continuing Education for Directors and Supervisors of TWSE Listed and TPEx Listed Companies". They have received a certificate of further education for this. | We will ensure compliance with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies. |

| Item | Description | | | Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| | | | The courses for continued education taken by the directors (including independent directors) in 2019 are as follows: | |

| Title | Name | Course date | Organizer | Course | Education hours | Does the course meet the requirements? |
|---|---|---|---|---|---|---|
| Chairman | Austin Chen | 2019/12/10 | Taiwan Corporate Governance Association | Corporate Strategy: Past, Present and Future | 3 | Yes |
| | | 2019/05/17 | Taiwan Corporate Governance Association | Transnational and Sustainable Management | 3 | Yes |
| Director | Teddy Lu | 2019/11/12 | Taiwan Corporate Governance Association | Principles and Applications of 5G Digital Communication and Internet of Things | 3 | Yes |
| | | 2019/11/12 | Securities and Futures Institute | Business Practices in "Fraud Detection and Prevention" and "AI Audit" | 3 | Yes |
| Director | Chang Chia-kun | 2019/12/20 | Taiwan Corporate Governance Association | Digital Resilience in Practice: Ability of the Directors, Supervisors and Senior Management to Respond | 3 | Yes |
| | | 2019/05/17 | Taiwan Corporate Governance Association | Transnational and Sustainable Management | 3 | Yes |

| Title | Name | Course date | Organizer | Course | Education hours | Does the course meet the requirements? |
|---|---|---|---|---|---|---|
| Director | Haydn Hsieh | 2019/09/27 | Taiwan Corporate Governance Association | Corporate Social Responsibility and Sustainable Competitiveness | 3 | Yes |
| | | 2019/09/27 | Taiwan Corporate Governance Association | How Should Directors and Supervisors Make Sure the Company Properly Manages its Business Risks | 3 | Yes |
| Director | George Huang | 2019/08/07 | Taiwan Corporate Governance Association | Recent Updates of the Laws and Regulations on Securities Management and Taxation | 1.5 | Yes |
| | | 2019/05/08 | Taiwan Corporate Governance Association | Information Security Insurance and Corporate Governance | 3 | Yes |
| | | 2019/03/20 | Taiwan Corporate Governance Association | Corporate Governance and Legal Compliance: On Anti-corruption and Economic Crimes | 1.5 | Yes |
| Representative of legal person as director | Weng Wen-jie | 2019/09/17 | Securities and Futures Institute | Analysis of Fraud in Business Mergers and Acquisitions: From the Perspective of Corporate Governance | 3 | Yes |
| | | 2019/09/17 | Securities and Futures Institute | International and Domestic Development of the Fight against Tax Avoidance: How Enterprises Should Respond | 3 | Yes |
| Independent Director | Max Wu | 2019/03/26 | Taiwan Corporate Governance Association | Global Issues of Tax Avoidance by Major Shareholders | 3 | Yes |
| | | 2019/03/26 | Taiwan Corporate Governance Association | Analysis of Important Issues and Practices Regarding the Company Act | 3 | Yes |

| Title | Name | Course date | Organizer | Course | Education hours | Does the course meet the requirements? |
|---|---|---|---|---|---|---|
| Independent Director | Philip Peng | 2019/08/07 | Taiwan Corporate Governance Association | Recent Updates of the Laws and Regulations on Securities Management and Taxation | 1.5 | Yes |
| | | 2019/05/08 | Taiwan Corporate Governance Association | Information Security Insurance and Corporate Governance | 3 | Yes |
| | | 2019/03/20 | Taiwan Corporate Governance Association | Corporate Governance and Legal Compliance: On Anti-corruption and Economic Crimes | 1.5 | Yes |
| | | 2019/03/12 | Taiwan Corporate Governance Association | Global Risk Trends in 2019 | 3 | Yes |
| Independent Director | Hsieh Hui-chuan | 2019/10/17 | Taiwan Corporate Governance Association | Introduction to the Key Provisions of the Fair Trade Act and the Impact of Global Antitrust Regulations on Taiwanese Companies | 3 | Yes |
| | | 2019/03/12 | Taiwan Corporate Governance Association | Global Risk Trends in 2019 | 3 | Yes |

(6) Managers and their participation in continuing education and training related to corporate governance:

| Title | Name | Course date | Organizer | Course | Education hours |
|---|---|---|---|---|---|
| Chairman and CSO | Austin Chen | 2019/5/17 | Taiwan Corporate Governance Association | Transnational and Sustainable Management | 3 |
| | | 2019/12/10 | Taiwan Corporate Governance Association | Corporate Strategy: Past, Present and Future | 3 |

| Title | Name | Course date | Organizer | Course | Education hours |
|---|---|---|---|---|---|
| General manager | Chang Chia-kun | 2019/5/17 | Taiwan Corporate Governance Association | Transnational and Sustainable Management | 3 |
| | | 2019/12/10 | Taiwan Corporate Governance Association | Digital Resilience in Practice: Ability of the Directors, Supervisors and Senior Management to Respond | 3 |
| CFO | Lai Zi-wen | 2019/2/20 | China Industrial & Commercial Research Institute | [Media and Public Relations] Seminar on Evaluation, Selection and Practical Training of Company Spokespersons | 6 |
| | | 2019/7/25 | Accounting Research and Development Foundation | Continuing Education Program for the Accounting Managers of Issuers, Securities Firms and Securities Exchanges | 12 |
| | | 2019/7/26 | | | |

(7) Implementation of risk management policies and risk assessment standards:
In accordance with relevant regulations and operational needs, internal management systems have been established. We provide education and training to employees for the development of appropriate concepts. We also actively promote and implement all kinds of risk management standards to decrease financial and business risks. On the other hand, internal auditors regularly conduct reviews on the implementation of our risk management regulations, and defects are corrected or improved to ensure effective oversight of the risk management systems.

(8) Implementation of customer policies:
We and our subsidiaries greatly value the opinions of customers. Business review meetings are held with the customers to understand their opinions and questions regarding products so that stable and good relations can be maintained with the aim to generate profits for the Company.

(9) Liability insurance coverage for directors and supervisors & social responsibility:
The Company have our directors and supervisors ensured by the director liability insurance every year and report the insurance to the Board of the Directors.

| Item | Description | | | Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| 9. On the basis of the result of corporate governance evaluation released by TWSE's Corporate Governance Center in the most recent year, please describe the matters to which improvements have been made. Regarding the matters to which improvements have yet to be made, please list those which have been selected as priorities and the measures to be taken. | V | | The improved items in 2019 are as follows:<br>1. The annual report has fully disclosed the proposals discussed and resolutions by the Remuneration Committee and what actions we have taken regarding the opinions of the members of the Committee.<br>2. The Board of Directors has adopted the Guidelines for Evaluating the Performance of the Board of Directors and completed the self-evaluations, with the results published on our website.<br>3. We have continued to improve information transparency and protect the rights and interests of shareholders.<br>The items for improvement in 2020 are as follows:<br>1. We will submit regular reports regarding communications with the stakeholders to the Board of Directors.<br>2. We will continue to strengthen corporate governance and establish and improve the regulations related thereto. | We will continue to conduct assessments and make improvements in accordance with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies. |

(4) If your company has a remuneration committee, the composition, responsibilities and operation of the committee shall be disclosed:

Our Remuneration Committee is composed of independent directors and external members. The Committee’s responsibilities include formulation and regular review of the policies, systems, standards and structures of the performance evaluation of remuneration for directors, supervisors and managers, and evaluation of the management team’s performance and employee bonus policies.

A. Information of the members of the Remuneration Committee

| Member type | Qualifications / Name | Experience of more than 5 years and following professional qualification | | | Independence (Note) | | | | | | | | | | Number of other public companies where the member also serves in a remuneration committee | Remarks End |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Lecturer or higher position at a public or private university/college in the department of commerce, law, finance, accounting or any other fields related to our business | Judge, public prosecutor, attorney, certified public accountant, or any other professional or technical specialists who have passed a national examination and received a certificate in a profession necessary for our business | Work experience in commerce, law, finance, accounting or any other fields necessary for our business | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| Independent Director | Max Wu | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2 | |
| Independent Director | Philip Peng | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 1 | |
| Independent Director | Hsieh Hui-chuan | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2 | |

Note: A member is required to mark a “✓” in the blank below the number of any of the following requirements which he/she has satisfied during the two years before being elected and during his/her term of office.

(1) The member is not an employee of the Company or any of its affiliates.

(2) The member is not a director or supervisor of the Company or any of its affiliates (except for an independent director of the Company, its parent or subsidiary or any subsidiary of the same parent appointed pursuant to the Act or any local laws and regulations).

(3) The director or supervisor is not a natural-person shareholder who holds shares, together with those held by his/her spouse or minor children or held in the name of another person, in an aggregate amount of at least 1% of the total shares issued by the Company or is one of the top-10 shareholders of the Company.

(4) The director or supervisor is not a spouse, relative within the second degree of kinship or lineal relative within the third degree of kinship, of any manager under (1) or any of the persons under (2) and (3).

(5) The director or supervisor is not a director, supervisor or employee of any corporate shareholder that directly holds at least 5% of the total shares issued by the Company, is one of the top-5 shareholders of the Company or has appointed a representative as a director or supervisor of the Company pursuant to Article 27, Paragraph 1 or 2 of the Company Act (except for an independent director of the Company, its parent or subsidiary, or any subsidiary of its parent appointed pursuant to the Company Act or local laws and regulations).

(6) The director or supervisor is not a director, supervisor or employee of any other company where more than half of its directors or voting shares are controlled by the same person (except for an independent director of the Company, its parent or subsidiary, or any subsidiary of its parent appointed pursuant to the Company Act or local laws and regulations).

(7) The director or supervisor is not a director, supervisor or employee of any other company or institution (except for an independent director of the Company, its parent or subsidiary, or any subsidiary of its parent appointed pursuant to the Company Act or local laws and regulations).

(8) The director or supervisor is not a director, supervisor, manager or shareholder holding at least 5% of the shares of any company or institution which has engaged in financial or business dealings with the Company (except where the company or institution holds at least 20% and no more than 50% of the total shares issued by the Company and is an independent director of the Company, its parent or subsidiary, or any subsidiary of its parent appointed pursuant to the Company Act or local laws and regulations).

(9) The director or supervisor is not an owner, partner, director, supervisor or manager, or a spouse thereof, of any professional, sole proprietorship, partnership, company or institution that engages in commercial, legal, financial and accounting services and which has conducted audit for the Company or any of its affiliates or has received a total amount of compensation not exceeding TWD 500,000 during the most recent two years, except where the director or supervisor is a member of any remuneration committee, public purchase review committee or special committee for mergers and acquisitions which performs its duties pursuant to the Securities and Exchange Act, Business Mergers And Acquisitions Act or other applicable laws and regulations.

(10) None of the circumstances under Article 30 of the Company Act applies to the director or supervisor.

B. Information on the operation of the Remuneration Committee

(A) Number of the members of the Remuneration Committee: Three.

(B) The term of the current members: May 30, 2018-May 29, 2021

(C) The Remuneration Committee held three meetings in the most recent year. The attendance of its members is described below:

| Title | Name | Number of meetings attended (B) | Number of meetings attended by proxy | Attendance rate (%) (B/A) | Remarks |
|---|---|---|---|---|---|
| Convener | Max Wu | 3 | 0 | 100 | |
| Member | Philip Peng | 3 | 0 | 100 | |
| Member | Hsieh Hui-chuan | 3 | 0 | 100 | |

Other matters to be specified:

1. If the Board of Directors does not adopt or revise the suggestions of the Remuneration Committee, the decision must indicate the date of Board of Directors meeting, term, contents of the proposal, Board of Directors resolution and how we handle the Committee’s opinions (if the amount of remuneration adopted by the Board of Directors is higher than that suggested by the Committee, the differences and reasons must be indicated): None.
2. In the event that any member of the Remuneration Committee has expressed dissent or reservation over the Committee’s decisions, and that the dissent or reservation has been recorded or delivered in writing, the decision shall indicate the date of the Committee’s meeting, term, contents of the proposal, opinions of all the members, and how the opinions of a member is handled: None.

(D) The proposals discussed and resolutions by the Remuneration Committee in the mosr recent year are as follows:

| Date | Meeting | Proposal | Remuneration Committee Resolution | The Company's action on the Committee's opinion |
|---|---|---|---|---|
| 2019/02/21 | 1st meeting in 2019 | Proposal for distribution of the remuneration for employees and directors in FY 2018 | Approved by all of the Committee members present | Approved by all of the directors present |
| 2019/02/21 | 1st meeting in 2019 | Proposal for adjustment of salary for managers in 2019 | Approved by all of the Committee members present | The proposal was approved by a resolution of the directors present, excluding the Chairman and CSO Austin Chen and the President Chang Chia-kun, who did not participate in the discussion and voting due to personal interests. |
| 2019/12/17 | 3rd meeting in 2019 | Proposal for distribution of the performance bonus for managers in 2019 | Approved by all of the Committee members present | The proposal was approved by a resolution of the directors present, excluding the Chairman and CSO Austin Chen and the President Chang Chia-kun, who did not participate in the discussion and voting due to personal interests. |
| 2019/12/17 | 3rd meeting in 2019 | Proposal for distribution of the remuneration for managers in 2019 | Approved by all of the Committee members present | The proposal was approved by a resolution of the directors present, excluding the Chairman and CSO Austin Chen and the President Chang Chia-kun, who did not participate in the discussion and voting due to personal interests. |
| 2019/12/17 | 3rd meeting in 2019 | Work plan for the Remuneration Committee in 2020 | Approved by all of the Committee members present | (Omitted) |

(5) Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons:

| Item for evaluation | Description | | | Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| 1. Does your company conduct assessment on the environmental, social and corporate governance risks related to the operations of the company based on the materiality principle? Does your company have a risk management policy or strategy? | V | | We have conducted assessment on the risks of the environmental, social and corporate governance issues related to our operations based on the materiality principle, and we have formulated relevant management policies including the internal audit system, whistleblowing system, climate change risk management and operating risk management. We have set up a corresponding organizational structure to perform regular review and reduce the likelihood of risk occurrence. | We are in compliance with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies. |
| 2. Does your company have a special unit or designate an existing unit for the task of CSR promotion? Does the Board of Directors of your company authorize the management to handle relevant matters and report to the Board? | V | | (1) We have established a CSR Committee tasked with proposing and implementing CSR policies, systems or management plans and specific implementation plans. Our Chairman and President act respectively as the head and executive secretary of the Committee. The Committee has five working groups of "Corporate Governance", "Employee Care", "Customer & Supplier Care", "Environmental Care" and "Community Care," with the managers of the relevant departments acting as the coordinators of the working groups. The Corp. MKT Office is designated as the Committee's secretariat to communicate and coordinate with different departments and hold regular review meetings to follow up on the progress of the working groups and report their status of operation to our senior management (quarterly) and the Board of Directors (annually). | We are in compliance with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies. |

| Item for evaluation | Description | | | Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| | | | The results of implementation in 2019:<br>A. Corporate Governance: We were ranked in the top 5% of companies participating in the 5th Corporate Governance Appraisal.<br>B. Employee Care: We participated in the program of employed sports advisors under the Sports Administration, Ministry of Education, and we were certified as an iSports corporation. On November 16, 2019, we held the “Family Day” event to enhance the leisure quality of our employees and improve their family relationships.<br>C. Customer & Supplier Care: We held the annual supplier conference on April 19, 2019.<br>D. Community Care: We held a one-day volunteer event to remove alien species on April 26, 2019. We continued to sponsor the education development in the local schools of Yulin Junior High School and Tainan Municipal Daguang Elementary School, with a total of TWD 0.21 million. The 2018 CSR Report won the “Golden Award” for the electronic information manufacturing industry in the Corporate Sustainability Report Category of the Taiwan Corporate Sustainability Award (TCSA) for the second time. | |
| 3. Environmental issues<br>(1) Does your company have an environmental management system which fits the industrial characteristics of the company? | V | | (1) We have established an environmental management system which received the ISO 14001 certification in 2005 and passed the audit in 2017. Furthermore, we received the ISO 14001:2015 certification on April 22, 2020, which the expiration period is from April 30, 2020 to April 29, 2023. We regularly conduct internal audits and management reviews to ensure the operations are in compliance with relevant environmental regulations and international standards. The aim is to achieve environmental sustainability. | We are in compliance with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies. |

| Item for evaluation | Description | | | Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| (2) Does your company put efforts into enhancing the efficiency of resource usage? Does your company use recycled materials which have a low impact on the environmental load? | V | | (2) We have put effort into improving the sources and enhancing the efficiency of resource usage, in order to achieve the objectives of waste reduction and lower the environmental impact. | |
| (3) Does your company assess the current and future risks and opportunities which climate change potentially brings to the company? Does your company take measures in response to climate-related issues? | V | | (3) We listed natural disasters as an important risk assessment aspect and established a business operation maintenance plan to fully assess the risk of business interruptions due to natural disasters. We also established backup steps and principles to increase response efficiency and decrease possible losses in the case of emergencies. | |

| Item for evaluation | Description | | | Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| (4) Does your company make statistics of its greenhouse gas emissions, water consumption and total waste weight during the previous two years? Does your company have policies for energy saving and carbon reduction, reduction of greenhouse gas emissions, reduction of water consumption or management of other waste? | V | | (4) We regularly maintain the greenhouse gas inventory, make statistics of water consumption and total waste weight, and strictly implement measures for energy saving and carbon reduction. We use power-saving lights with high efficiency, replace energy-consuming office automation equipment in the production line, introduce compact computers which are low energy-consuming, promote a paperless office through digitization, and set air conditioners to automatically shut down during non-office hours. With these measures, we seek to reduce energy waste and usage. We also have formulated short-term, medium-term and long-term strategies for energy saving, carbon reduction and advanced process, with having a "green factory" as the ultimate goal. | |
| 4. Social issues<br>(1) Does your company have management policies and procedures in accordance with relevant regulations and international human rights conventions? | V | | (1) According to the Labor Standards Act, an employer must not employ any person under the age of 16, and any such person will be prohibited from performing heavy and dangerous work. We are in continuous compliance with government regulations and have never illegally employed any worker under 16. Also, we prohibit forced labor and do not allow any minor to perform dangerous work. In our supply chain management, every contractor has been asked to prohibit child labor in accordance with the standards of the Responsible Business Alliance (RBA), and follow the labor laws and worker safety regulations of different regions. Due to wide-scale changes of labor law in recent years, we have regularly reviewed all of the systems and regulations and revised relevant provisions in accordance with the latest laws. Also, the related work rules have been published on the internal website for employees to read at any time. | We are in compliance with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies. |

| Item for evaluation | Description | | | Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| (2) Does your company establish and implement reasonable employee benefit measures (including remuneration, leave and other benefits)? Is the operating performance or results properly reflected in the remuneration for employees? | V | | (2) We provide our employees with the benefits they are entitled to in accordance with the Labor Standards Act. We also provide benefits that are better than what the Labor Standards Act requires, such as a number of leave days higher than that required by law, and support and encouragement for childbearing. Moreover, our operating performance is properly reflected in the remuneration for employees, and we allocate 10-20% of our profit for the employees on an annual basis depending on the operating conditions. | |
| (3) Does your company provide a safe and healthy work environment to its employees? Does your company regularly provide its employees with safety and health education? | V | | (3) We provide a safe and healthy work environment, and in 2018 we renewed the OHSAS 18001 certification for occupational safety and health systems. In addition, we conduct annual health examinations, and all new and current employees receive safety and health training. | |

| Item for evaluation | Description | | | Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| (4) Does your company have effective programs for development and training regarding employees' career skills? | V | | (4) In 2014, we began to comprehensively implement HR operations with position and competency as the core concerns. Education and training courses have been designed for employees in different positions to enhance their competencies. Since 2015, we have implemented the "Directions on Talent Supply Chain Management for Essential Positions" in all aspects and have continued to do so with the expectation that the potential of employees can be effectively increased. | |
| (5) Does your company conform to the relevant regulations and international standards with respect to customer health and safety, customer privacy, marketing and labeling for products and services? Does your company establish the relevant consumer rights protection policies and complaint procedures? | V | | (5) The Company ensures the quality of its products and services are in accordance with government regulations and industrial standards. Regarding the marketing, labeling and customer privacy for products and services, we follow the relevant regulations and international standards and strictly prohibit deceit, misguidance, fraud or any other act that damages the trust or rights of customers. | |

| Item for evaluation | Description | | | Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| (6) Does your company have a supplier management policy that requires suppliers to comply with regulations concerning environmental protection, occupational safety and health or labor rights? What's the status of its implementation? | V | | (6) In accordance with the standards of the Responsible Business Alliance (RBA), our component specifications and procurement procedures are all in compliance with standard written or fair contracts so that suppliers can focus on ethical management and offer the best quality and reasonable prices. Through influence on suppliers and cooperative relationships, we promote certain issues in its upstream supply chain, including RoHS, process and quality control, workers' rights, health and safety, and prohibition of child labor. We also have communication channels in place with suppliers to ensure they also follow the ERBA policies to reduce risks of non-conformity with relevant regulations. This shows that we do put emphasis on CSR. | |

<table>
<tr><th rowspan="2">Item for evaluation</th><th colspan="3">Description</th><th rowspan="2">Differences with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies and reasons</th></tr>
<tr><th>Yes</th><th>No</th><th>Summary</th></tr>
<tr><td>5. Does your company use internationally accepted standards or guidelines for preparation of reports as reference in preparing the CSR report and other reports disclosing non-financial information of the company? Do the aforementioned reports receive assurance or guarantee opinions from any third-party verifying agency?</td><td>V</td><td></td><td>We adopt the GRI Standards published by the Global Reporting Initiative for sustainability reporting, and we prepare our reports based on its Core options within this internationally accepted reporting framework. The reports fully disclose the economic, environmental and social issues which our stakeholders are concerned with. To ensure transparency and credibility of the information disclosed, the independent and credible BSI (British Standards Institution) has been commissioned to provide assurance to the reports in accordance with the Type 1, moderate assurance standard of the AA1000 Assurance Standard (2008) and the Core options of the GRI Standards.</td><td>We are in compliance with the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies.</td></tr>
<tr><td colspan="5">6. In the event the company has established its own CSR principles in accordance with the Corporate Social Responsibility Best Practice Principles for TWSE/GTSM Listed Companies, please describe the differences between the actual implementation of CSR and the company's own CSR principles: The actual implementation of CSR in Apacer has been completely in line with its "CSR Best Practice Principles", and there have been no differences.</td></tr>
<tr><td colspan="5">7. Other important information helpful for understanding the actual implementation of CSR: For detailed information, please see our annual CSR reports on our website: https://www.apacer.com/zh/Csr/Achievement</td></tr>
<tr><td colspan="5">8. If your company's CSR reports have been verified by any relevant verifying agency, please describe: Our 2018 CSR report has been certified by British Standards Institution (BSI). However, as of the date on which the annual report was printed, our 2019 CSR report was still in the review process of the BSI. In addition, we have implemented an ISO 14001 environmental management system to reduce the consumption of resources and also received validation under the OHSAS 18001 occupational safety and health system to provide a healthy and safe work environment. Regarding quality control, we have received the certifications of ISO 9001 quality management system and a QC080000 hazardous substances process management (HSPM) system for electronic and electrical products. We have not only committed to product quality assurance but also implemented green production processes and followed the international RoHS standards.</td></tr>
</table>

(6) Implementation of corporate ethical management and differences with the Ethical Corporate Management Best Practice Principles for TWSE/GTSM Listed Companies and reasons

| Item for evaluation | Description | | | Differences with the Ethical Corporate Management Best Practice Principles for TWSE/GTSM Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| 1. Development of ethical management policies and programs<br>(1) Does your company establish ethical management policies adopted by the Board of Directors? Does your company clearly specify, in its regulations and external documents, the ethical management policies and practice and the commitment of the Board of Directors and the management to rigorous and thorough implementation of those policies? | V | | (1) We have "Ethical Corporate Management Best Practice Principles", which was adopted by the Board of Directors. The Principles stipulates our ethical management policies. To implement ethical management, the Board of Directors and senior management have designated units (HR units) to carry out the ethical management policies and preventive programs. This has been included in the routine audit, and reports are regularly submitted by the dedicated units to the Board of Directors annually and published on our internal website for employees to read. So far, we have not found any material violation. | In compliance with the Ethical Corporate Management Best Practice Principles for TWSE/GTSM Listed Companies. |

| Item for evaluation | Description | | | Differences with the Ethical Corporate Management Best Practice Principles for TWSE/GTSM Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| (2) Does your company establish a risk assessment mechanism against unethical conduct to analyze and assess, on a regular basis, business activities within its business scope which are at a higher risk of involving unethical conduct, and accordingly establish programs to prevent unethical conduct? Do such programs include at least measures to prevent the acts specified under Article 7, Paragraph 2 of the “Ethical Corporate Management Best Practice Principles for TWSE/GTSM Listed Companies”? | V | | (2) We have established the “Procedures for Ethical Management and Guidelines for Conduct” and “Whistleblowing System” to regulate unethical conduct and preventive measures. It is stipulated in our “Work Rules” that in the event of conclusive evidence showing any employee has “engaged in jobbery, embezzlement of public funds, or acceptance of bribes/commissions” or “concurrently conducted any external business that is in conflict with our operations and affects our interests, with the circumstances deemed grave”, the employee must be dismissed.<br>We promote these rules during regular education and training sessions to ensure the employees understand the regulations they are required to follow during work. All contracts between Apacer and its suppliers include clauses on ethical management. We have established effective systems for accounting and internal control. Auditors regularly examine the extent of compliance with these systems in order to effectively prevent unethical conduct. | |

| Item for evaluation | Description | | | Differences with the Ethical Corporate Management Best Practice Principles for TWSE/GTSM Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| (3) Does your company specify, in the programs for prevention of unethical conduct, the operational procedures, code of conduct, punishment for violations and complaint systems? Have such programs been implemented and regularly reviewed and revised? | V | | (3) We have "Procedures for Ethical Management and Guidelines for Conduct" and "Whistleblowing System" which are implemented by the implementing units and audited by the auditing units. The relevant regulations can be reviewed and revised from time to time if required. | |
| 2. Implementation of ethical management<br>(1) Does your company assess the past records of the counterparties regarding ethics? Do contracts between the company and the counterparties include clear clauses governing ethical conduct? | V | | (1) All contracts between Apacer and its suppliers include clauses on ethical management. | In compliance with the Ethical Corporate Management Best Practice Principles for TWSE/GTSM Listed Companies. |

| Item for evaluation | Description | | | Differences with the Ethical Corporate Management Best Practice Principles for TWSE/GTSM Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| (2) Does your company have a special unit as subordinate to the Board of Directors for the implementation of corporate ethical management? Does the unit regularly report (at least annually) to the Board of Directors regarding the ethical management policies and unethical conduct prevention programs and the supervision and implementation thereof? | V | | (2) According to our "Procedures for Ethical Management and Guidelines for Conduct", the HR units are designated as the units responsible for the implementation of corporate ethical management. The units coordinate with each department in implementing ethical management within the scope of the department's functions and carrying out related matters in accordance with the "Procedures for Ethical Management and Guidelines for Conduct". The units attend the Board of Directors meeting on an annual basis to present reports regarding the implementation of ethical management.<br>The reports presented to the Board of Directors regarding the implementation in 2019 are as follows:<br>A. In accordance with our "Ethical Corporate Management Best Practice Principles" and "Procedures for Ethical Management and Guidelines for Conduct".<br>B. In October 2019, we organized ethical management training sessions (including labor, health and safety, environmental health, ethical standards, management systems and other RBA-related issues), which were attended by 491 persons.<br>C. Until the current Board of Directors meeting, we have not received any report regarding violation of the relevant code and conduct guidelines. | |
| (3) Does your company have policies against conflicts of interest and provide proper channels through which explanations may be given? Has the company implemented them? | V | | (3) In the case of a conflict of interest in business, the relevant person notifies his/her manager and recuses himself/herself in accordance with the employment contract to prevent any conflict of interest. The circumstances and standards of conflicts of interest are clearly specified in our Code of Ethical Conduct. People are required to recuse themselves and, in the event that they have learned or are facing similar circumstances, to report to their immediate superiors, managers of the HR unit and Administrative Service Division, or the Board of Directors in an adequate manner. So far, we have not found any material violation. | |

| Item for evaluation | Description | | | Differences with the Ethical Corporate Management Best Practice Principles for TWSE/GTSM Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| (4) Does your company establish effective systems for accounting and internal control to ensure the implementation of ethical management? Do the company's internal auditing units formulate relevant audit plans based on the results of assessment on the risks of unethical conduct and accordingly audit the compliance with the unethical conduct prevention programs? Or are audits conducted by commissioned CPAs? | V | | (4) In accordance with the competent authority's regulatory updates, letters and directives, we have revised our internal control and accounting systems on a regular or if needed ad hoc basis to meet operational requirements. The internal auditing units conduct assessment based on the risks of the main operating processes and design the annual audit plans. The auditors conduct audits pursuant to the plans in order to verify the status of implementation of the system and the control of defects (or risks). | |

| Item for evaluation | Description | | | Differences with the Ethical Corporate Management Best Practice Principles for TWSE/GTSM Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| (5) Does your company regularly hold internal and external education and training sessions regarding ethical management? | V | | (5) Our regulations governing ethical management have been included as part of the internal education and training for employees. | |
| 3. Functioning of the whistleblowing system<br>(1) Does your company have concrete systems for whistleblowing and rewards? Does your company have convenient channels in place for whistleblowing and has it appointed appropriate personnel to deal with the persons who are the subject of whistleblowing? | V | | (1) We have the "Whistleblowing System", which clearly includes whistleblowing and reward systems and stipulates that the managers of the auditing and HR units are designated as the persons responsible for these matters. | In compliance with the Ethical Corporate Management Best Practice Principles for TWSE/GTSM Listed Companies. |

| Item for evaluation | Description | | | Differences with the Ethical Corporate Management Best Practice Principles for TWSE/GTSM Listed Companies and reasons |
|---|---|---|---|---|
| | Yes | No | Summary | |
| (2) Does your company establish standard operating procedures for investigation of matters reported by whistleblowers, measures to be taken following the conclusion of investigation and relevant mechanisms for confidentiality? | V | | (2) The “Whistleblowing System” includes relevant operating procedures, follow-up measures for defect improvement and mechanisms for confidentiality. | |
| (3) Does your company take any measures to protect whistleblowers from improper treatment as a result of their whistleblowing? | V | | (3) The “Whistleblowing System” includes a clear list of whistleblower protection measures to prevent whistleblowers from being treated improperly as a result of whistleblowing. Any whistleblowing report is processed in accordance with the rules governing the system. | |

<table>
<tr><th rowspan="2">Item for evaluation</th><th colspan="3">Description</th><th rowspan="2">Differences with the Ethical Corporate Management Best Practice Principles for TWSE/GTSM Listed Companies and reasons</th></tr>
<tr><th>Yes</th><th>No</th><th>Summary</th></tr>
<tr><td>4. Strengthening disclosure of information<br>Does your company disclose the contents of its ethical management principles and outcome of implementation on its website and the Market Observation Post System?</td><td>V</td><td></td><td>We have disclosed the “Ethical Corporate Management Best Practice Principles” and “Procedures for Ethical Management and Guidelines for Conduct” on our website, and we monitor the development of domestic and international regulations concerning ethical management. We encourage our directors, supervisors, managers, and employees to make suggestions, which inform the review and improvement of the Ethical Management Best Practice Principles with the aim to achieve better outcomes of ethical management.</td><td>In compliance with the Ethical Corporate Management Best Practice Principles for TWSE/GTSM Listed Companies.</td></tr>
<tr><td colspan="5">5. In the event your company has established its own ethical management best practice principles in accordance with the Ethical Corporate Management Best Practice Principles for TWSE/GTSM Listed Companies, please describe the differences between the implementation of ethical management and the company’s own ethical management best practice principles: None.</td></tr>
<tr><td colspan="5">6. Other important information helpful for understanding the implementation of your company’s ethical management: (such as review and amendment of the company’s own ethical management best practice principles)<br>To meet the requirements of corporate governance and ethical management, we established the audit committee in 2018 to achieve the goal of corporate governance and ethical management. Besides, we hold a supplier conference annually to clarify our policy of corporate ethical management to our suppliers and get their commitment to it.</td></tr>
</table>

(7) If your company has established corporate governance best practice principles and relevant regulations, the ways through which they can be searched for must be disclosed:
For our Corporate Governance Best Practice Principles and relevant regulations, please visit our website (http://www.apacer.com/)

(8) Other important information helpful for increasing understanding of your company's corporate governance may be disclosed along with the above information:

A. As our business scale grows and the need for control and management of foreign subsidiaries arises, we have continued to review and establish relevant regulations, procedures and internal implementation rules to enhance operational performance and strengthen risk control, with the aim to achieve better implementation of corporate governance. In recent years, following the establishment or amendment of relevant laws and standards by the competent authority in charge of securities, and taking into account practical business needs, Apacer has established the following regulations:

- "Articles of Incorporation",
- "Rules of Procedure for Shareholders' Meetings",
- "Director Election Regulations",
- "Rules of Procedure for Board of Directors",
- "Procedures for Acquisition or Disposal of Assets",
- "Procedures for Endorsements/Guarantees",
- "Procedures for Loaning Funds to Others",
- "Regulations on Engaging in Commercial Foreign Exchange Risk Management Related Financial Products",
- "Regulations Governing the Transactions among Related Parties, Specific Companies, and Group Enterprises".

The following implementation rules have also been established as basis of all internal operations:

- "Rules Governing the Scope of Responsibilities of Independent Directors",
- "Regulations Governing the Management of Financial and Non-financial Information",
- "Regulations Governing the Management of Liabilities, Commitments and Contingencies",
- "Code of Ethical Conduct",
- "Ethical Corporate Management Best Practice Principles",
- "Procedures for Ethical Management and Guidelines for Conduct",
- "Management Procedures for Handling Material Insider Information and Prevention of Insider Trading",
- "Subsidiary Management Regulations",
- "Corporate Governance Best Practice Principles",
- "CSR Best Practice Principles",
- "Rules Governing the Whistleblowing System",
- "Regulations Governing the Management of Seals".

Internally, we notify all employees of the latest regulations and rules through announcement and publishes them on the internal website. They are simultaneously posted on our official website and can be searched for. The training of new employees also includes courses for the promotion of these regulations and rules.

B. Our personnel responsible for financial information transparency have received certificates designated by the competent authority, as follows:

| **Certificate** | **No. of person(s)** | |
|---|---|---|
| | **Internal audit** | **Finance & Accounting** |
| Certified Public Accountant (CPA) of the Republic of China (Taiwan) | 1 | 0 |
| Certified Internal Auditor (CIA) | 2 | 0 |

(9) The status of the implementation of internal control systems shall include the disclosure of the following matter(s):

A. Declaration on the Internal Control System

## Apacer Technology Inc.

Declaration on the Internal Control System

Date: February 25, 2020

Based on the result of self-inspection of Apacer's internal control system in 2019, we hereby declare the following:

1. We acknowledge that the Board of Directors and managers are responsible for the establishment, implementation and maintenance of the internal control system. We have established such a system, with the aim to provide reasonable assurance concerning the effectiveness and efficiency of operations (including profits, performance and protection of asset safety), reliability of financial reporting, and compliance with relevant regulations.
2. Any internal control system has its inherent limitations. No matter how well an internal control system is designed, it can only provide reasonable assurance regarding the achievement of the above three objectives. Moreover, the effectiveness of an internal control system may be altered as a result of changes in the environment and circumstances. Our internal control system however includes a self-monitoring mechanism. Once a defect has been identified, corrective actions are immediately taken.
3. We determine the effectiveness of the design and implementation of our internal control system by using the items specified in the Regulations Governing Establishment of Internal Control Systems by Public Companies (hereinafter "the Regulations"). The aforementioned items in "the Regulations" divide an internal control system into five components based on the processes of management and control: 1. control environment, 2. risk assessment, 3. control activities, 4. information and communication, and 5. monitoring. Each component includes several elements. Please see the Regulations for the aforementioned items.
4. We have used the aforementioned items to examine the effectiveness of the design and implementation of our internal control system.
5. Based on the result of the examination, we determined that until December 31, 2019, the design and implementation of our internal control system (including supervision and management of subsidiaries) have worked well regarding the effectiveness and efficiency of operations, reliability of financial reporting and compliance with relevant regulations, providing reasonable assurance that the above objectives have been achieved.
6. This Declaration is to be part of the main contents of our annual reports and prospectuses, and released to the public. In the event that the above public content includes false information or concealed certain information, the legal responsibilities under Articles 20, 32, 171 and 174 of the Securities and Exchange Act will be invoked.
7. This Declaration was adopted by the Board of Directors meeting on February 25, 2020. All nine directors present approved the content of this Declaration, and none of them expressed dissent. This information is declared as an addition.

**Apacer Technology Inc.**

Chairman: Austin Chen signature

President: Chang Chia-kun signature

B. If review of the internal control system has been conducted by entrusted CPAs, the CPAs' review report must be disclosed: None.

(10) During the most recent FY as of the date on which the annual report was printed, did the company or its internal personnel receive punishment in accordance with the law? Did the company's internal personnel receive punishment for violating the requirements of the internal control system? Please describe any defect found during the same period and its status of improvement: None.

(11) Important resolutions of the Shareholders' Meeting and Board of Directors meetings during the most recent FY as of the date on which the annual report was printed:

A. Important resolutions of the Shareholders' Meeting

| Date of meeting | Meeting resolutions | Status of implementation |
|---|---|---|
| 2019.5.30 | Proposal to ratify the business and financial reports of FY 2018 was adopted. | The proposal was adopted without revision. |
| | Proposal to ratify the profit distribution for FY 2018 was adopted. | The proposal was adopted without revision.<br>July 3, 2019 was set as the record date, and July 26, 2019 was set as the pay date. (The distributed amount of cash dividend was TWD 2.5 per share) |
| | Proposal for amendment of the "Procedures for Acquisition or Disposal of Assets" was adopted. | The proposal was adopted without revision.<br>The amendment has been executed and announced in the official website. |

B. Important resolutions of the Board of Directors

| Term of the Board of Directors | Time | Proposal |
|---|---|---|
| 1st meeting in 2019 | 2019.2.21 | (1) Proposal for distribution of the remuneration for employees and directors in FY 2018 was adopted.<br>(2) The business report and self-prepared financial statements of FY 2018 were adopted.<br>(3) Proposal for distribution of the profit of FY 2018 was adopted.<br>(4) Proposal to submit the "Declaration on the Internal Control System" for FY 2018 was adopted.<br>(5) Proposal for adjustment of salary for managers in 2019 was adopted.<br>(6) Proposal for amendment of the "Procedures for Acquisition or Disposal of Assets" was adopted.<br>(7) Proposal to amend the "Corporate Governance Best Practice Principles" was adopted.<br>(8) Proposal to convene the regular Shareholders' Meeting in 2019 was adopted. |

| Term of the Board of Directors | Time | Proposal |
|---|---|---|
| 2nd meeting in 2019 | 2019.4.19 | (1) Proposal for assessment on the independence of the CPAs auditing and certifying the Company's financial statements was adopted.<br>(2) Philip Tang and Grace Chen, the CPAs of KPMG Taiwan, were commissioned to audit and certify the financial statements of the Company, and a resolution concerning their remuneration was adopted.<br>(3) Proposal to establish the "Standard Operating Procedures for Processing Directors' Requests" was adopted. |
| 3rd meeting in 2019 | 2019.8.13 | (1) The quarterly consolidated financial statements for the second quarter of 2019 were adopted. |
| 4th meeting in 2019 | 2019.10.25 | (1) Proposal to amend the "Ethical Corporate Management Best Practice Principles" was adopted.<br>(2) Proposal to amend the "Whistleblowing System" was adopted.<br>(3) The internal audit plan for FY 2020 was adopted. |
| 5th meeting in 2019 | 2019.12.17 | (1) The operational plan for 2020 was adopted.<br>(2) Proposal for distribution of the performance bonus for managers in 2019 was adopted.<br>(3) Proposal for distribution of the remuneration for managers in 2019 was adopted.<br>(4) Proposal to extend contracts with financial institutions concerning the credit line and transaction limit for financial products in FY 2020 was adopted.<br>(5) Proposal to establish the "Guidelines for Evaluating the Performance of the Board of Directors" was adopted.<br>(6) Proposal to amend the "Regulations Governing the Management of Seals" was adopted.<br>(7) Proposal for amendment of the "Internal Control System" and "Rules for Implementation of the Internal Audit System" for financing circulation of the Company was adopted. |
| 1st meeting in 2020 | 2020.2.25 | (1) Proposal for distribution of the remuneration for employees and directors in FY 2019 was adopted.<br>(2) The business report and self-prepared financial statements of FY 2019 were adopted.<br>(3) Proposal for distribution of the profit of FY 2019 was adopted.<br>(4) Proposal to submit the "Declaration on the Internal Control System" for FY 2019 was adopted.<br>(5) Proposal to amend the "Articles of Incorporation" was adopted.<br>(6) Proposal to repeal and establish the "Rules of Procedure for Shareholders' Meeting" was adopted.<br>(7) Proposal to convene the regular Shareholders' Meeting in 2020 was adopted. |

| Term of the Board of Directors | Time | Proposal |
|---|---|---|
| 2nd meeting in 2020 | 2020.3.25 | (1) Proposal to amend the "Regulations of Transferring Repurchase of Company Shares to Employees" was adopted.<br>(2) Proposal to execute the 1st repurchase of treasury stocks in 2020 was adopted. |
| 3rd meeting in 2020 | 2020.4.16 | (1) Proposal for the leaving of manager was adopted.<br>(2) Proposal for adjustment of salary for managers in 2020 was adopted.<br>(3) Proposal for assessment on the independence of the CPAs auditing and certifying the Company's financial statements was adopted.<br>(4) Philip Tang and Grace Chen, the CPAs of KPMG Taiwan, were commissioned to audit and certify the financial statements of the Company, and a resolution concerning their remuneration was adopted.<br>(5) Proposal for issuance of Restricted Stock Awards for FY2020 was adopted.<br>(6) Proposal to amend the "Regulations of Transferring Repurchase of Company Shares to Employees" was adopted.<br>(7) Proposal to amend the "Articles of Incorporation" was adopted.<br>(8) Proposal to amend the "Rules of Procedure for Board Meetings" was adopted.<br>(9) Proposal to amend the "Ethical Corporate Management Operating Procedures and Behavior Guidelines" was adopted.<br>(10) Proposal to amend the "Code of Practice for Corporate Social Responsibility" was adopted.<br>(11) Proposal for amendment of the "Internal Control System" and "Rules for Implementation of the Internal Audit System" for other management control circulation of the Company was adopted.<br>(12) Proposal for revise to the meeting agenda of the regular Shareholders' Meeting in 2020 was adopted. |

(12) In the event that any director or supervisor expressed a dissenting opinion regarding any of the important resolutions adopted by the BoD during the most recent FY as of the date on which the annual report was printed, and that the opinion was recorded or delivered in writing, please describe its main content: None.

(13) Summary of resignation or dismissal of the company's chairman, president, accounting manager(s), financial manager(s), internal audit manager(s) and R&D manager(s) during the most recent FY as of the date on which the annual report was printed: None.

4. Information on CPA's professional fees

Unit: TWD 1,000

| **Accounting firm** | **Type of service** | **Name of CPA** | **Professional fee** | **Does the audit period cover the whole FY?** | |
|---|---|---|---|---|---|
| | | | | **Yes** | **No** |
| KPMG Taiwan | Audit service | Philip Tang | 3,435 | V | |
| | | Grace Chen | | | |
| | Non-audit service | Willis Yeh | 550 (Note) | | |

Note: All the non-audit services are services for transfer pricing reports.

(1) In the event the amount of non-audit professional fees paid to a CPA, the CPA's firm and any of its affiliates is at least 25% of that of audit professional fees, the amounts of audit and non-audit professional fees and the contents of non-audit service must be disclosed: N/A

(2) In the event that the accounting firm has been changed and that the amount of audit professional fees paid during the FY when the change occurs is lower than that paid during the previous FY, the amounts before and after the change and the reasons must be disclosed: N/A

(3) In the event the amount of audit professional fees is reduced by at least 15% in comparison with the previous FY, the amount, percentage and reasons of reduction must be disclosed: N/A

5. Information on change of CPAs (If your company changed the CPAs during the most recent two FYs and their subsequent periods, the following information must be disclosed)

(1) On the predecessor CPAs: None.

(2) On the successor CPAs: None.

(3) Letters of reply from the predecessor CPAs: None.

6. The company's chairman, president, or financial/accounting manager served in the CPAs' firm(s) or any affiliate during the most recent year: None.

7. Change of shares transferred and pledged for directors, supervisors, managers and any shareholder holding more than 10% of the company's shares during the most recent FY until the date on which the annual report was printed

(1) Change of shares for directors, supervisors, managers and major shareholders

Unit: Share

| Title | Name | 2019 | | 2020, until April 1 | |
|---|---|---|---|---|---|
| | | No. of shares held Increase/Decrease | No. of shares pledged Increase/Decrease | No. of shares held Increase/Decrease | No. of shares pledged Increase/Decrease |
| Chairman and CSO | Austin Chen | - | - | - | - |
| Director | Teddy Lu | - | - | - | - |
| Director and General manager | Chang Chia-kun | - | - | - | - |
| Director | Haydn Hsieh | - | - | - | - |
| Director | George Huang | | | | |
| Independent Director | Max Wu | - | - | - | - |
| Independent Director | Philip Peng | - | - | - | - |
| Independent Director | Hsieh Hui-chuan | - | - | - | - |
| Vice President | Victor Lin | - | - | - | - |
| CFO | Lai Zi-wen | - | - | - | - |
| Senior manager of center | Luo Xue-ru | | | | |
| Senior manager of center | Huang Mei-hui | - | - | - | - |

(2) Information on share transfer: None.

(3) Information on share pledge: None.

8. Information on the top-10 shareholders who are related to each other, in a spousal relationship or within the second degree of kinship:

April 1, 2020 Unit: Share; %

| TOP 10 SHAREHOLDERS | NO. OF SHARES HELD | | SHARES HELD BY SPOUSE OR MINOR CHILDREN | | SHARES HELD IN THE NAME OF OTHERS | | THE TITLE OR NAME AND RELATION IN CASE OF THE TOP-10 SHAREHOLDERS WHO ARE RELATED PARTIES TO EACH OTHER, IN A SPOUSAL RELATIONSHIP OR WITHIN THE SECOND DEGREE OF KINSHIP | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| | **Number of shares** | **Shareholding ratio** | **Number of shares** | **Shareholding ratio** | **Number of shares** | **Shareholding ratio** | **Title (or name)** | **Relation** | |
| Phison Electronics Corp. | 10,050,000 | 9.96% | - | - | - | - | - | . | - |
| Teddy Lu | 5,699,906 | 5.65% | - | - | - | - | - | - | - |
| Austin Chen | 1,525,633 | 1.51% | 450,268 | 0.45% | - | - | - | - | - |
| George Huang | 1,207,041 | 1.20% | - | - | - | - | - | - | - |
| Fuh Hwa Small Capital Fund | 1,200,000 | 1.19% | | | - | - | - | - | - |
| Credit Suisse securities in escrow at Standard Chartered Bank | 1,179,000 | 1.17% | - | - | - | - | - | - | - |
| Merrill Lynch Securities Comprehensive Taiwan Day Trade Account in escrow at HSBC | 1,088,300 | 1.08% | - | - | - | - | - | - | - |
| Masa Chang | 1,010,000 | 1% | | | - | - | - | - | - |
| Illinois State Cities Retirement Fund in escrow at Bank of Taiwan | 903,419 | 0.9% | - | - | - | - | - | - | - |
| Global Flexibility Partner Limited Partnership Account in escrow at Bank of Taiwan | 681,677 | 0.68% | - | - | - | - | - | - | - |

9. Shares held by the Company and the directors, supervisors, managerial officers, and business that the Company directly or indirectly controls in the same invested business and their shareholding ratio

April 23, 2020 Unit: Share; %

| Invested business | Company's investment | | Investments of directors, supervisors, managers and directly or indirectly controlled business | | Total investment | |
|---|---|---|---|---|---|---|
| | Number of shares | Shareholding ratio | Number of shares | Shareholding ratio | Number of shares | Shareholding ratio |
| Apacer Memory America Inc. | 20,000 | 100% | - | - | 20,000 | 100% |
| Apacer Technology B.V. | 79,513 | 100% | - | - | 79,513 | 100% |
| Apacer Technology Japan Corp. | 200 | 100% | - | - | 200 | 100% |
| Apacer Technology (BVI) Inc. | 2,635,775 | 100% | - | - | 2,635,775 | 100% |
| HONG YU Technology Co., Ltd. | 5,000,000 | 100% | - | - | 5,000,000 | 100% |
| Apacer Technologics Private Limited. | 28,799 | 99.65% | 100 | 0.35% | 28,899 | 100% |
| Apacer Electronics (Shanghai) Co., Ltd. | Note 1 | 100% | - | - | Note 1 | 100% |
| Shenzhen Qinjing Technology Co., Ltd. | Note 2 | 99% | - | - | Note 2 | 99% |
| JoiiUp Technology Inc. | 1,500,000 | 16.15% | - | - | 1,500,000 | 16.15% |

Note 1: Amount of contribution USD 500,000.
Note 2: Amount of contribution RMB 4,985,714.

# IV. Financing

1. Capital and share

(1) Sources of capital stock

A. Capital formation

As of April 23, 2020
Unit: Share/1,000s of TWD

| M/Y | price (dollar) | Authorized capital stock | | Paid-in capital stock | | Remarks | | |
|---|---|---|---|---|---|---|---|---|
| | | Number of shares | Amount | Number of shares | Amount | Capital sources | Property other than cash as substitute for share price | Approval date and document no. |
| July 2016 | 10 | 200,000,000 | 2,000,000 | 100,897,807 | 1,008,978 | Note | None | None |

Note: The capital of the Company was not changed in 2019 and as of the date on which the annual report was printed.

B. Type of shares

Unit: Share

| Type | Authorized capital stock | | | Remarks |
|---|---|---|---|---|
| | Outstanding shares | Unissued shares | Total | |
| Common stock | 100,897,807 (issued) | 99,102,193 | 200,000,000 | |

C. Information on general declaration systems: None

(2) Structure of shareholders

April 1, 2020

| Structure / Number | Government agency | Financial institution | Other corporate bodies | Individual | Foreign institutions | Total |
|---|---|---|---|---|---|---|
| Shareholders (persons) | - | 3 | 207 | 32,201 | 115 | 32,526 |
| Shares held (share) | - | 955,000 | 13,532,836 | 69,875,609 | 16,534,362 | 100,897,807 |
| Shareholding ratio (%) | 0.00% | 0.95% | 13.41% | 69.25% | 16.39% | 100% |

(3) Ownership distribution

April 1, 2020

| Share | Shareholders | Shares held (share) | Shareholding ratio (%) |
|---|---|---|---|
| 1 to 999 | 21,148 | 1,181,646 | 1.17% |
| 1,000 to 5,000 | 9,080 | 17,957,294 | 17.80% |
| 5,001 to 10,000 | 1,202 | 9,363,398 | 9.28% |
| 10,001 to 15,000 | 359 | 4,500,012 | 4.46% |
| 15,001 to 20,000 | 213 | 3,966,135 | 3.93% |
| 20,001 to 30,000 | 170 | 4,300,465 | 4.26% |
| 30,001 to 40,000 | 76 | 2,663,848 | 2.64% |
| 40,001 to 50,000 | 62 | 2,822,914 | 2.80% |
| 50,001 to 100,000 | 122 | 8,473,639 | 8.40% |
| 100,001 to 200,000 | 39 | 5,293,207 | 5.25% |
| 200,001 to 400,000 | 35 | 10,837,811 | 10.74% |
| 400,001 to 600,000 | 9 | 4,372,462 | 4.33% |
| 600,001 to 800,000 | 2 | 1,301,677 | 1.29% |
| 800,001 to 1,000,000 | 1 | 903,419 | 0.90% |
| 1,000,001 or more | 8 | 22,959,880 | 22.75% |
| Total | 32,526 | 100,897,807 | 100.00% |

(4) Major shareholders

April 1, 2020

| Share / Major shareholder | Shares held (share) | Shareholding ratio (%) |
|---|---|---|
| Phison Electronics Corp. | 10,050,000 | 9.96% |
| Teddy Lu | 5,699,906 | 5.65% |
| Austin Chen | 1,525,633 | 1.51% |
| George Huang | 1,207,041 | 1.20% |
| Fuh Hwa Small Capital Fund | 1,200,000 | 1.19% |
| Credit Suisse securities in escrow at Standard Chartered Bank | 1,179,000 | 1.17% |
| Merrill Lynch Securities Comprehensive Taiwan Day Trade Account in escrow at HSBC | 1,088,300 | 1.08% |
| Masa Chang | 1,010,000 | 1% |
| Illinois State Cities Retirement Fund in escrow at Bank of Taiwan | 903,419 | 0.9% |
| Global Flexibility Partner Limited Partnership Account in escrow at Bank of Taiwan | 681,677 | 0.68% |

(5) Information on the market price, net value, earnings, and dividend per share in the recent two years

Unit: TWD /1,000s of shares

| Item | Year | | 2018 | 2019 | 2020, as of March 31 |
|---|---|---|---|---|---|
| Market price per share (Note 1) | Maximum | | 41.80 | 43.85 | 49.40 |
| | Minimum | | 24.65 | 27.75 | 30.20 |
| | Average | | 35.72 | 33.27 | 41.63 |
| Net value per share | Before allocation | | 26.71 | 27.81 | 29.26 |
| | After allocation | | 24.16 | (Note 2) | - |
| Earnings per share | Weighted average shares | | 100,898 | 100,898 | 100,898 |
| | EPS (before adjustment) | | 3.56 | 3.73 | 1.53 |
| | EPS (after adjustment) | | 3.56 | (Note 2) | - |
| DPS | Cash dividend | | 2.50 | (Note 2) | - |
| | Stock grants | - | - | - | - |
| | | - | - | - | - |
| | Accumulated unpaid dividend | | - | - | - |
| ROI analysis | PE (Note 3) | | 10.03 | (Note 2) | - |
| | PD (Note 4) | | 14.29 | (Note 2) | - |
| | Cash dividend yield % (Note 5) | | 7.00 | (Note 2) | - |

Note 1: Source: TWSE website
Note 2: To be approved at the 2020 regular shareholders' meeting.
Note 3: PE = Average closing price per share of the current year / EPS.
Note 4: PD = Average closing price per share of the current year / cash dividend per share.
Note 5: Cash dividend yield = (Cash dividend per share / average closing price per share of the current year)x100%.

(6) Dividend policy and implementation status

A. Apacer's dividend policy

Our earnings, if any, shown on the final annual account are distributed as follows:

(A) Pay taxes.
(B) Make up losses of previous years.
(C) Appropriate 10% as legal reserve, except when the legal reserve of the Company has already reached the total capital.
(D) Provide or reserve as a special reserve pursuant to laws and regulations.
(E) If there is any surplus left, a provision of retained earnings is made depending on the long-term development plans and the stability of the financial structure of the Company. The Board of Directors then discusses the distribution of the surplus left in the current year in combination with the unpaid earnings of the previous years, and reports to the shareholders' meeting for approval.

The dividend policy of the Company must be established in consideration of the overall environment of the industry, development phase, demand for funds and financial supports in the future, and relevant plans. Earnings to be distributed may be paid using cash of stocks. The payment ratio is about 60%~90% of the earnings after tax if there are no important investment plans or any special circumstances. The cash dividend must not be less than 10% of the total amount of the dividend.

B. Dividend distribution proposed at the current shareholders' meeting:
The distribution of earnings in 2019 was approved by the Board of Directors on February 25, 2020. A cash dividend of TWD 257,289,408 will be distributed to the shareholders.

(7) The influence of the stock grants proposed at the current shareholders' meeting on the operation performance and EPS of the Company:

Unit: TWD

<table>
<tr><th colspan="3">Year / Item</th><th>2020 (estimated)</th></tr>
<tr><td colspan="3">Initial paid-in capital</td><td>1,008,978,070</td></tr>
<tr><td rowspan="3">Dividend distribution</td><td colspan="2">Cash dividend per share (dollar) (Note 1)</td><td>2.55</td></tr>
<tr><td colspan="2">Allotment per share in surplus to capital increase (Note 1)</td><td>-</td></tr>
<tr><td colspan="2">Allotment per share in additional paid-in capital (Note 1)</td><td>-</td></tr>
<tr><td rowspan="6">Changes in operation performance</td><td colspan="2">Operating income</td><td rowspan="6">N/A (Note 2)</td></tr>
<tr><td colspan="2">Operating profit increase (decrease) compared to same period last year</td></tr>
<tr><td colspan="2">Net income after tax</td></tr>
<tr><td colspan="2">Net income after tax increase (decrease) compared to same period last year</td></tr>
<tr><td colspan="2">Earnings per share</td></tr>
<tr><td colspan="2">EPS increase (decrease) compared to same period last year</td></tr>
<tr><td rowspan="8">Pro forma EPS and PE</td><td rowspan="2">Annual average ROI (annual average PE ratio)</td><td>Pro forma EPS</td><td rowspan="8">N/A (Note 2)</td></tr>
<tr><td>Pro forma annual average ROI</td></tr>
<tr><td rowspan="2">All cash dividends in case of earnings to capital increase</td><td>Pro forma EPS</td></tr>
<tr><td>Pro forma annual average ROI</td></tr>
<tr><td rowspan="2">If no additional paid-in capital to capital increase</td><td>Pro forma EPS</td></tr>
<tr><td>Pro forma annual average ROI</td></tr>
<tr><td rowspan="2">If no additional paid-in capital and all cash dividends in case of earnings to capital increase</td><td>Pro forma EPS</td></tr>
<tr><td>Pro forma annual average ROI</td></tr>
</table>

Note 1: Allotment in 2020 is an estimate based on the resolution at the Board of Directors meeting on February 25, 2020. It will be handled pursuant to relevant regulations after approved at the 2020 regular shareholders' meeting.

Note 2: The Company is not required to make the 2020 financial prediction information public according to the "Regulations Governing the Publication of Financial Forecasts of Public Companies".

(8) Remunerations for employees and directors

A. Percentage or scope of the remuneration for employees and directors according to the Articles of Incorporation:

Where there is profit in any fiscal year, 4% or more of the profit must be appropriated as remuneration for employees. Where the Company has any accumulated loss, the remuneration must be appropriated from the balance after such accumulated loss has been covered. The employees' remuneration referred to in the previous paragraph may be distributed in the form of cash or stock. The employees eligible for the distribution may include the employees of the affiliated companies who meet the requirements specified by the Board of Directors.

The Board of Directors is authorized to determine the remuneration recommended by the Remuneration Committee for any director with reference to the extent of his/her involvement in and value of his/her contribution to the operation of the Company and the standards of the industry in Taiwan and overseas regardless of the Company's profits or losses. Where there is profit in any fiscal year, not more than 1.4% of the profit shall be appropriated as remuneration for directors. Where the Company has any accumulated loss, the remuneration must be appropriated from the balance after such accumulated loss has been covered. The criteria for allocation of the remuneration must be recommended by the Remuneration Committee to the Board of Directors for approval. The procedures for determining remuneration are evaluated in accordance with the "Regulations Governing the Distribution of Remuneration for Directors".

B. The current estimation base of remuneration for employees and directors, calculation base for distribution of dividends, and methods for handling the difference between actually distributed and estimated amounts:

Remunerations for employees and directors are recognized as expenses of the current year. The difference, if any, between the actually distributed and estimated amounts is recognized as the loss/profit of the next year.

C. Information on the proposed distribution of remuneration for employees and directors in 2019 approved by the Board of Directors

Unit: TWD

| Disclosed Information | Amount |
|---|---|
| Dividends to be distributed to employees - Cash | $49,120,000 |
| Dividends to be distributed to employees - Stock | - |
| Remuneration to be distributed to directors | $7,323,409 |
| Number of shares to be distributed to employees as dividends and the percentage it occupies in surplus to capital increase | None |
| Imputation after proposed distribution of dividends to employees and remunerations to directors<br>Earnings per share | 3.73 (basic)<br>3.68(diluted) |

Note: Information related to the distribution of profit in 2019 can be accessed through the Market Observation Post System.

D. Actual distribution of the remuneration for employees and directors in 2018:

Distribution of the dividends for employees and remunerations for directors in 2018 was adopted at the shareholders' meeting on May 30, 2019. The approved distribution is not different from the estimated shares in 2018. Details are described below:

Unit: TWD

<table>
<tr><th>Profit Distribution for FY 2018</th><th>Actual distribution</th><th>Book estimation</th><th>Difference</th></tr>
<tr><td>Dividends distributed to employees - Cash</td><td>44,047,000</td><td rowspan="2">44,047,000</td><td rowspan="2">-</td></tr>
<tr><td>Dividends distributed to employees - Stock</td><td>-</td></tr>
<tr><td>Remuneration distributed to directors and supervisors</td><td>6,851,779</td><td>6,851,779</td><td>-</td></tr>
</table>

E. Names of the top-10 employees receiving the highest remuneration from the profit of 2018 and its distribution:

Unit: TWD

<table>
<tr><th>Title</th><th>Name</th><th>Share amount</th><th>Cash amount</th><th>Total</th><th>The total amount in net income after tax (%)</th></tr>
<tr><td>Chairman and CSO</td><td>Austin Chen</td><td rowspan="10">-</td><td rowspan="10">9,818,000</td><td rowspan="10">9,818,000</td><td rowspan="10">2.61%</td></tr>
<tr><td>General manager</td><td>Chang Chia-kun</td></tr>
<tr><td>Vice President</td><td>Victor Lin</td></tr>
<tr><td>Senior manager of center</td><td>Huang Mei-hui</td></tr>
<tr><td>Senior manager of center</td><td>Luo Xue-ru</td></tr>
<tr><td>CFO</td><td>Lai Zi-wen</td></tr>
<tr><td>Senior manager</td><td>Li Jun-chang</td></tr>
<tr><td>Senior manager</td><td>Yin Hua-jun</td></tr>
<tr><td>Senior manager</td><td>Guo Mei-dai</td></tr>
<tr><td>Special assistant</td><td>Luo Rong-fa</td></tr>
</table>

(9) Status of stock buyback by the Company: None.

2. Status of corporate bonds
   N/A

3. Status of preferred stock
   N/A

4. Status of overseas depositary receipts
   N/A

5. Status of employee stock option certificates
   (1) Status of the employee stock option certificates that have not fallen due and their effect on shareholders' equity must be disclosed as of the date on which the annual report was printed: None.
   (2) Status of employee stock option certificates acquired by management team and top-10 employees, acquisition and subscription as of the date on which the annual report was printed: None.

6. Status of employee restricted stock
   (1) Status of the employee restricted stock that has not met all the conditions and its effect on shareholders' equity must be disclosed as of the date on which the annual report was printed: None.
   (2) Status of the employee restricted stock acquired by management team and top-10 employees and the acquisition as of the date on which the annual report was printed: None.

7. Status of new share issuance in connection with mergers and acquisitions: N/A.

8. Status of financing plans and implementation: N/A.

# V. Overview of business operation

1. Business activities

(1) Business scope

A. Major business

(A) DRAM module
(B) NAND flash memory
(C) Others

B. Operating proportion

Unit: TWD 1,000

| Product | FY 2019 | |
|---|---|---|
| | Sales amount | Sales percentage |
| Flash memory | 4,591,572 | 61.34% |
| Memory module | 2,887,603 | 38.57% |
| Other | 6,646 | 0.09% |
| Total | 7,485,821 | 100.00% |

C. Current product categories

(A) The RAM module covers the desktop, laptop and overclocking memory modules.
(B) Special memory modules for IPCs, servers, printers, network products, and routers.
(C) USB Disk Module (UDM)
(D) Industrial USB2.0 & USB3.1 flash drives
(E) PCIe/SATA/ATA Disk Module (SDM/ADM/mSATA/M.2)
(F) SATA/ATA Disk Chip (SDC/ADC)
(G) SATA3.0 2.5”/1.8” SSD
(H) CorePower™ SSD: Abnormal power failure protection SSD
(I) SLC-lite product line
(J) SSDWidget real-time monitoring hardware
(K) IP57 waterproof and anti-dust SSD (Solid State Drive)
(L) PCIe CFx Card/Industrial CF Card/CFast Card/Embedded SD, microSD Card
(M) SD Card, SDHC Card, SDHC UHS-1, SDXC UHS-1 Card, High Speed 95/85 U3 SDHC/SDXC, High Speed 95/45 U3 SDHC/SDXC
(N) micro SD Card, microSDHC Card, microSDHC UHS-1, High Speed 95/85 U3 microSDHC/SDXC, High Speed 95/45 U3 microSDHC/SDXC, microSDHC UHS-I U1 V10 & V30 Cards
(O) CompactFlash memory card
(P) USB3.1 fingerprint protection USB
(Q) USB2.0 & USB3.1
(R) 2.5” SATAIII, mSATA, M.2 and PCIe interface SSD
(S) USB2.0 & USB3.1 Card Reader
(T) USB3.1 Portable HD
(U) USB3.1 drop-resitant portable HD of military specifications
(V) USB3.1 Type-C Portable HD
(W) USB 3.1 Type-C Multi-function Hub
(X) OTG USB

(Y) OTG Portable Card Reader and Adaptor
(Z) USB 2.0 & USB 3.1 Type-C charging cable
(AA) Apple certificated Lightning charging cable
(BB) Apple certificated Lightning dual-purpose USB
(CC) Portable power source
(DD) Military PCIe U.2 SSD
(EE) Enterprise SATA3.0/PCIe 2.5” SSD
(FF) CANbus Module/Dongle
(GG) CANbus + GPS Module/Dongle
(HH) CAN OPEN Module
(II) Luminance meter
(JJ) USB3.0 SSD Module
(KK) Anti-vulcanization DDR4 Module
(Server DIMM/Ultra DIMM/Rugged SODIMM)
(LL) Light meter
(MM) CUBE colorimeter
(NN) GNSS Module
(OO) IIoT solution
(PP) Smart IoT Smart environmental monitoring system
(QQ) Rugged DDR4 XR-DIMM Module
(RR) High speed DDR4 2666 wide-temperature memory module
(SS) 32-Bits DDR4 SODIMM Module
(TT) DDR4 2933/3200 memory module

D. New products to be developed
(A) High speed DDR4 2933/3200 wide-temperature memory module
(B) DDR4 32GB UDIMM/SODIMM ECC DIMM ECC SODIMM memory module
(C) Rugged DDR4 XR-LRDIMM Module
(D) Bullet-Proof Mini SSD External
(E) Super-charging portable power source
(F) All-in-one charging cable
(G) SED (Self-Encrypting Drives) SSD: Encrypted SSD
(H) Storage SSDs used by servers: PCIe U.2 SSD/BGA SSD/M.3 module/EDSFF module
(I) Flicker (stroboscope)
(J) Edge Computing Server
(K) MOAB II Lite shiftable distro plate
(L) Control software
(M) Air-cooled chassis
(N) AIO 120/360mm
(O) Soldered distro plate
(P) Water temperature gauge
(Q) Slide switch
(R) 240/360 cold type
(S) PCIe SSD RGB
(T) Double capacity DCRAM gaming memory module
(U) RGB DDR4 3200 1.2V memory module
(V) Smart navigation management system
(W) Three-axis automatic measurement system for spectroradiometer
(X) All-in-one light meter (commercial lighting, visual lighting horticultural lighting, agricultural lighting)
(Y) UV optical testing device

(2) Overview of the industry

A. Status quo and development of the industry

Our major business includes manufacture and sale of DRAM modules and NAND flash products.

In the process of the memory modules, DRAM (Dynamic Random Access Memory) is bound onto a PCB according to a layout design. The PCB is then embedded in a motherboard for connection with other compatible functions to increase the processing speed and memory capacity of the computer. Regarding the cost structure, the price of DRAM occupies 80%-90% of the product on average (calculation based on 8GB PC standard module). Hence, the fluctuation of the DRAM market is in close relationship with the prosperity and recession of the memory module industry. The development trend of the DRAM market is the first factor to be understood for analyzing the status quo and feature of the memory module industry.

The flash memory is used in digital products for storage of information. Thanks to the non-volatile semi-conductor technology, flash memory can be used as a storage media for the information that needs permanent retention and amendment. For example, the programed instruction storage of the Set-top-box and EDRs as well as the applications for the storage of mass data for the digital cameras, smart phones, PC applications, SSDs, POSs and IoT applications are all in close relation with the flash memory.

Hence, the development trends in the DRAM and flash memory industries have an interlocking relationship with our main products of memory modules. The DRAM and memory module markets as well as the status quo of the flash memory industry are described below.

(A) Overview of the DRAM market

a. Market size

According to the results of a preliminary survey by the international research and survey agency Gartner, the total revenue of the global semiconductor industry in 2019 was USD 418.3 billion, an 11.9% decrease from 2018. Such a decline in the semiconductor market had negative impact on many major manufacturers, such as Samsung Electronics, which was also heavily affected despite it being the no. 1 in terms of revenue in 2017 and 2018. As a result, Intel became the champion in the market again.

According to Gartner, the revenue of the semiconductor market in 2019 dropped 31.5%, accounting for 26.7% of total semiconductor sales. In particular, DRAM revenue declined 37.5% in 2019 due to its oversupply from the end of 2018 and throughout 2019. The main reason for the oversupply was a sudden large-scale drop in market demand. During the first half of 2019, the manufacturers were trying to solve the problem of excessive inventory levels. In the second half of that year, as the memory manufacturers stocked too much inventory due to delayed sales in the first half, and prices had to be lowered. The result was that the global average sales price of DRAM in 2019 decreased 47.4%.

In 2019, Intel retook the championship in the revenues of global semiconductor manufacturers from Samsung, which held that title for two consecutive years (see Fig. 1). Due to a slowdown in the server market, continued short supply of CPU and the sales by Intel of its cellular modem business to Apple in Q4 last year, Intel saw a 0.7% decline in its semiconductor revenue in 2019.

Samsung dropped to the second place because of the decline in the memory market. Like other memory manufacturers, Samsung struggled against revenue decrease caused by an oversupply and price drop in the DRAM and NAND flash markets. In 2019, Samsung's total revenue dropped 29.1%, while the revenue of its memory division decreased 34%, which accounted for 82% of its total sales.

Unit: 0.1 billions of USD

| 2019年排行 | 2018年排行 | 廠商 | 2019年營收 | 2019年市占率（%） | 2018 年營收 | 2018-2019年成長率（%） |
|---|---|---|---|---|---|---|
| 1 | 2 | 英特爾 | 657.93 | 15.7 | 662.9 | -0.7 |
| 2 | 1 | 三星電子 | 522.14 | 12.5 | 736.49 | -29.1 |
| 3 | 3 | SK海力士 | 224.78 | 5.4 | 362.4 | -38 |
| 4 | 4 | 美光科技 | 200.56 | 4.8 | 297.42 | -32.6 |
| 5 | 5 | 博通 | 152.93 | 3.7 | 162.61 | -6 |
| 6 | 6 | 高通 | 135.37 | 3.2 | 153.75 | -12 |
| 7 | 7 | 德州儀器 | 132.03 | 3.2 | 145.93 | -9.5 |
| 8 | 8 | 意法半導體 | 90.17 | 2.2 | 92.13 | -2.1 |
| 9 | 12 | Kioxia（東芝記憶體） | 87.97 | 2.1 | 85.33 | 3.1 |
| 10 | 10 | 恩智浦 | 87.45 | 2.1 | 90.22 | -3.1 |
|  |  | **其他（前10名以外）** | **1,891.69** | **45.2** | **1,957.13** | **-3.3** |
|  |  | **總計** | **4,183.02** | **100** | **4,746.31** | **-11.9** |

Source: Gartner (January 2020)

**(Fig. 1 Revenue of the top-10 global semiconductor manufacturers in 2019)**

The global memory market accounts for nearly a quarter of the whole semiconductor market. Among all kinds of memory products, DRAM and NAND flash are most i demand. In 2019, the extent of decline in NAND flash was smaller compared with that of the whole memory market. Despite a rise in the inventory levels at the end of 2018, a slowdown in demand during the first half of 2019 made the situation worse again. In Q2, however, the wafer fab established as a joint venture between KIOXIA and Western Digital experienced a power cut, which provided the manufacturers with an opportunity to reduce the original inventory and push prices up from thierlow point. As a result, the NAND market began to stabilize in July 2019. Additionally, market demand for SSDs became stronger in the second half of 2019, and the demand for 5G smartphones is expected to start growing in 2020. Gartner predicted that the trend of rebound in the NAND market will continue into 2020.

After nearly three quarters of inventory adjustment in 2019, the inventory of the components for DRAM end products like PCs, servers, mobile phones and graphics cards generally returned to normal levels. 2020 is going to see a limited increase in DRAM production planned by DRAM manufacturers, stronger demand growth in 5G, AI and in-vehicle applications, and higher demand for servers due to 5G implementation. These have helped the global semiconductor industry gradually recover from its bottom. The DRAM output in 2019 amounted to USD 62.4 billion, and it is estimated to reach USD 70.8 billion in 2020, which will also increase the output from the global semiconductor market in the same year.

From the perspective of DRAM revenue, Samsung was still firmly in the lead in the DRAM sector. Nevertheless, since the growth in its shipment of server modules was slightly lower than that of its peers, the bit shipment in its revenue of Q4 2019 only had a small increase of 2-3%, while its revenue declined 5% to USD 6.76 billion, and its market share went down to 43.5% from 45.1% in Q3 2019. For SK Hynix, its revenue bit growth was about 8%, which made up for the 7% price drop. As a result, its revenue in Q4 2019 was USD 4.54 billion, up 2.9% from Q3 2019, and its market share increased to 29.2%. While remaining in the third place, Micron saw nearly 10% shipment bit growth in Q4 2019 with a revenue of USD 3.47 billion, up 2.1% from Q3, and its market share reached 22.3%, a return to the 20%+ level (see Fig. 2).

Unit: Millions of US$

| Ranking | Company | Revenue | | | Market Share | |
|---|---|---|---|---|---|---|
| | | 2019Q4 | 2019Q3 | QoQ (%) | 2019Q4 | 2019Q3 |
| 1 | Samsung | 6,761 | 7,119 | -5.0% | 43.5% | 45.1% |
| 2 | SK Hynix | 4,537 | 4,411 | 2.9% | 29.2% | 28.0% |
| 3 | Micron | 3,469 | 3,399 | 2.1% | 22.3% | 21.5% |
| 4 | Nanya | 430 | 475 | -9.3% | 2.8% | 3.0% |
| 5 | Winbond | 141 | 156 | -9.8% | 0.9% | 1.0% |
| 6 | Powerchip | 62 | 78 | -20.7% | 0.4% | 0.5% |
| | Others | 134 | 135 | -0.7% | 0.9% | 0.9% |
| **Total** | | **15,535** | **15,773** | **-1.5%** | **100.0%** | **100.0%** |

Note 1: 2019 Q3−USD 1 = KOW 1,194; USD 1 = TWD 31.2
Note 2: 2019 Q4−USD 1 = KOW 1,176; USD 1 = TWD 30.5
Source: TrendForce Corp., February 2020

**(Fig. 2 2019 Q4 DRAM brand ranking by revenue)**

b. Development of products

DRAM is an assistant of the processor chip, and is a temporary storage location for data that the processor is processing. It is mainly used in electronic products. DRAM is classified into different categories including Commodity DRAM, Server DRAM, Specialty DRAM and Mobile DRAM.

Commodity DRAM is the standard DRAM with PC related products as the major applications, such as DTs and NBs. Some low-end tablet PCs also use Commodity DRAM for price considerations.

Server DRAM, usually used in servers, has benefited from demands for cloud computing, big data and IoT. The demand for servers or DRAM in standalone servers is growing year by year. Data center and server application are the key markets where DRAM suppliers will actively make current and future investments. Driven by the simultaneous bit growth in shipment and DRAM in standalone servers, server application is expected to become the largest segment of global DRAM shipment by 2023, surpassing mobile devices.

Specialty DRAM is a special niche product and has the widest application range especially in the electronic consumer goods including smart TVs, digital set-top boxes, game consoles, and smart speakers. In-vehicle and industrial wide-temperature memories are also the application territories of Specialty DRAM. As the technologies and equipment for IoT gradually mature, the demand for niche memory products with a small capacity will continue to increase.

Mobile DRAM is a mobile application primarily used in mobile device products. Most of the Mobile DRAM series use LPDDR3 and LPDDR4 to meet the low power requirements of mobile device products. Smart phones and middle to high end tablets are the major applications of the Mobile DRAM. Some notebooks use this memory to meet their low power requirements. Most of the Apple MacBook series use Mobile DRAM instead of Commodity DRAM.

Mobile devices have played a role that drives the growth of the global semiconductor market in recent years, and their built-in functions have become more diversified. In addition, many brands of smartphones have emphasized the performance of the multi-camera function, therefore increasing the demand for low-power features. As a result, Mobile DRAM used in mobile devices has seen its demand rise greatly, and it, along with Server DRAM, have become the two mainstream products for DRAM application.

In 2020, 5G communication is likely to be another application area worthy of attention. Under the 5G architecture, in addition to communication equipment and hand-held devices, smart cars, smart homes, smart cities and other omnipresent smart devices are able to benefit from the more widespread and denser connection services provided by a 5G network. Edge computing is to add a computing layer between the traditional cloud and the terminal devices to assist with capture, filtration and collection of data and facilitate real-time analysis. It can also respond immediately to the device to omit the complicate procedure of uploading all the data to the cloud and decrease latency and storage cost for data transmission. Aside from complementing to the 5G technology, it enables data processing to be completed first at the end points through AI learning and computing to provide better consumer experience. The impact of the edge computing technology on the industry includes a significant rise of the demand for devices such as “small servers” and “small data centers”. The overall demand for servers is expected to grow greatly. In 2020, the COVID-19 pandemic has boosted the stay-at-home economy and expanded the demand of data centers for memory solutions. During the next 2-3 years, server memories are going to surpass mobile memories and stand to become the mainstream products for supply and demand.

c. Overview of major DRAM suppliers

(a) Drop in the average sales price has reduced the operating profit margins of DRAM manufacturers

The overall industrial price in Q4 2019 dropped 7-8% from the previous quarter. Except for the leading manufacturer Samsung, the operating profits of most other DRAM suppliers continued to show decline. Samsung's operating profit margin rebounded against the trend to 36% from 33% in Q3. Besides the cost advantage brought by the gradual increase of 1Ynm production, the solution of the earlier problems in the 1Xnm server products enabled the margin to largely return to the previously recognized level. For SK Hynix, its 1Ynm products in Q4 2019 were still at the initial stage of increased production with lower yields that negatively affected the cost. Its operating profit margin slid to 19% from 24% in Q3 2019, the largest extent of decline among the three manufacturers. The operating profit margin of Micron also showed decline, from 24% in Q3 to 20%, on par with that of SK Hynix. As to Nanya, the Taiwanese manufacturer, a decline in its sales prices was the main cause for the drop of its operating profit margin from 15.2% in Q3 2019 to 11% in Q4 2019 (see Fig. 3).

| Company | 2018Q1 | 2018Q2 | 2018Q3 | 2018Q4 | 2019Q1 | 2019Q2 | 2019Q3 | 2019Q4 |
|---|---|---|---|---|---|---|---|---|
| **Samsung** | 69% | 69% | 70% | 66% | 48% | 41% | 33% | 36% |
| **SK Hynix** | 61% | 63% | 66% | 58% | 44% | 28% | 24% | 19% |
| **Micron** | 58% | 60% | 62% | 58% | 45% | 34% | 24% | 20% |
| **Nanya** | 44% | 47% | 51% | 42% | 27% | 23% | 15% | 11% |

Source: TrendForce Corp., February 2020

**(Fig. 3 Operating profit margins of DRAM manufacturers)**

(b) DRAM process transition schedule

From the start of 2019 to Q1 2020, the production volume of Samsung was largely in line with its original plan. The older Line13 machine equipment is less efficient in transition to an advanced process, and the demand for image sensors has been good due to continued improvement in the penetration rate of the multi-camera function. Therefore, Samsung has planned to increase the production volumes of Line17 (including the production capacity of Line16) and Pyeongtaek Plants 1 and 2 (P1L and P2L) to make up for the declining production volume of Line13, with no reduction in the total production volume. Regarding production processes, 1Xnm still accounted for about 50%, while 1Ynm production has been slowly increasing. At the end of 2019, the two generations of 10nm processes accounted for, in total, at least 70% of the production level. The next-generation 1Znm has also been put into trial production in small volumes, and its production is expected to slowly increase in 2020. The introduction and use of the EUV machines are planned for some 1Znm products.

In the second half of 2019, SK Hynix began to accelerate the transition of the DRAM production in M10 to the production of image sensors, and its will continue this transition plan in 2020. At the same time, there will be a small increase in M14’s production volume to make up for the drop in M10. For the two new plants in Wuxi, China, their production plans are likely to be conservative due to impact from the US-China trade war and COVID-19. Regarding the processes, 1Xnm accounted for more than 50% of the shipment at the end of 2019, and it has started to gradually transition to 1Ynm. In 2020, 1Ynm is going to be the main process in SK Hynix for transition. However, transition to the whole new 10nm is much more difficult, resulting in poor yields for the product during the initial stage. It is likely that the product will experience a period of pain from low yields in the next one or two quarters, while 1Ynm is expected to account for over 30% of the total production by the end of 2020.

For Micron Technology Taiwan, a subsidiary of Micron, its 1Xnm accounted for around 70% in Q4 2019, and its 1Ynm was up to at least 20%, even though the extent of any increase this year is not expected to be large. Currently, the whole production capacity of Micron Technology Taiwan has been transitioned to 1Xnm, and its next-generation processes will skip 1Ynm and directly transition to the 1Znm processes. Production in small volume has already started, and the volume will increase on a quarterly basis in 2020. The plant in Hiroshima, Japan transitioned to the 1Ynm processes last year, causing a partial reduction in wafers which led to a drop in the production volume. The percentage of 1Ynm production currently exceeds 1Xnm and 20nm. This year, the focus will be on the continued transition to 1Ynm, and the production capacity for 1Znm will begin to gradually increase.

Mass production has been introduced to Powerchip’s 25nm process. However, since the yield of the DDR4 products is still unstable, the percentage of the process increases rather slowly. It currently focuses on the production of DDR3 4Gb and strives to raise the production yield of DDR4 4Gb to meet the mainstream market demand.

The production of Nanya focuses on the 20nm process, and currently its main products are DDR3 2Gb/4Gb and DDR4 8Gb. At the investor conference in January 2020, Nanya formally announced that its 1Anm and 1Bnm processes will use self-developed technologies instead of those licensed by Micron. Nanya plans to put 1Anm into trial production in the second half of 2020, and the first product will be LPDDR4 8Gb. Furthermore, it will continue the R&D of 1Bnm with the expectation that it can be put into trial production by 2022.

| Company | Current Generation | Under Transition | Next Generation | Ready Schedule |
|---|---|---|---|---|
| Samsung | 1Xnm | 1Ynm | 1Znm | 2020Q1 |
| SK Hynix | 1Xnm | 1Ynm | 1Znm | 2020Q4 |
| Micron/MTTW | 1Xnm | 1Ynm | 1Znm | 2020Q1 |
| Micron/Hiroshima | 20nm/1Xnm | 1Ynm | 1Znm | 2020Q1 |
| Micron/MMT | 1Xnm | 1Znm | | 2020 |
| Nanya | 30nm shrink/20nm | 20nm | 1Anm/1Bnm | 2021Q1/2022 |
| Powerchip | 30nm/25nm | 25nm | 25nmS | TBD |

Source: Compiled by Apacer

**(Fig. 4 Evolution of DRAM process)**

As for the specifications of products, most of the Intel/AMD chip sets in servers, desktop computers, and notebooks support DDR4 architecture in 2020. As AI-related issues are discussed more widely in recent years, the demand for high-speed computing (HPC) has kept rising and moved toward the development of edge computing to drive the growing long-term demand of the server market. Since it is expected that data centers will push up the demand for high-capacity DRAM modules, DDR5 and other new products have entered the sample phase.

(c) Supply-demand development of the industry

Samsung, Micron and SK Hynix account for approximately 95% of the global DRAM production capacity. Since 2018, the three major manufacturers have lowered their capital expenses year by year. As a result, the global bit production of DRAM has totally relied on process scaling to raise the bit growth rate, and the bit growth rate brought by the 10nm process scaling is far lower than the past benefits from the 30nm or 20nm process scaling. According to the estimates of several survey and research institutions, the bit growth rate of DRAM will be 10-15% in 2020, and its demand will increase 15-20%, resulting in possible undersupply in high season.

The rise of mass-production manufacturers in the DRAM industry of China is an issue receiving common attention from the memory market and industry. The memory manufacturers in China originally planned to begin production in 2019 to boost the semiconductor industry. However, the development schedule of the Chinese manufacturers received a heavy blow due to the United States prohibition of selling certain technologies to certain countries and the recession in the global semiconductor market. It is estimated that the mass production period of the Chinese plants will be delayed to the end of 2020 or later. Currently, only CXMT has successfully put products into production thanks to the technologies learned from Qimonda. Sample products have been sent to the customers, and mass production of the 8GB DDR4 and LPDDR4 products is set to begin. As a result, CXMT became the first Chinese DRAM manufacturer to enter the milestone of mass production.

(B) Current status of the flash memory market

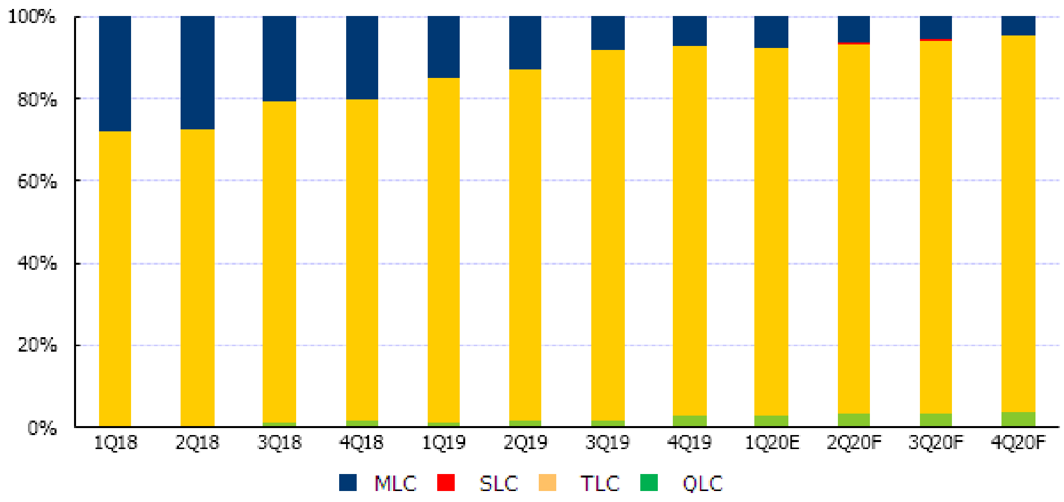
a. Market size

The NAND Flash (flash memory) market has been affected by a number of negative factors including the demands for PCs and smartphones hitting a peak in 2019, US-China trade war, power outage at Toshiba's Yokkaichi plant, Japan-Korea trade conflict and consumption of the overly high level of inventory of data centers during the previous three quarters. As a result, according to an estimate by the Industrial Technology Research Institute (IEK Consulting), the global NAND Flash market size in 2019 shrank 24.3% from 2018 to approximately USD 44 billion. In Q4 2019, with the start of replenishment of the inventory of data centers and PC OEMs, rise in the demand for servers, continued growth in OEM demand for SSDs, and increase in the capacity of smartphones and new game consoles, it is expected that the global NAND Flash market size in 2020 will reach USD 58 billion, a significant 31.8% increase.

As for the supply, in 2020 the output of 3D NAND wafer production will remain above 85%, and the supply of 2D NAND Flash products will drop quarter by quarter. In 2020, the equivalent production of the 12" wafer will decline 0.6% in Q1 and have a 2.7% growth in Q2, while the growth rate by bit will be -3% and 10.3%, respectively. In 2020, the percentage of TLC architecture will remain stable at 90%+, while the percentage of QLC output will, due to continually limited production, stay within 5% throughout the year.

Regarding the NAND Flash market trend in 2020, as manufacturers have been dedicated to improving the capacity and yield of the 92/96-layer products, the output by bit in 2019 was 311,580M (8Gb equiv.), a 31.7% increase from 2018. The output is expected to grow about 32.6% to 413,119M (8Gb equiv.) in 2020.

In the aspect of the product structure, SLC applications focus on the demandable embedded SSD of the server and industrial control and the MCP high-performance application of smart mobile devices, network communications products, set-top boxes, smart speakers and carborn devices. The market demand is relatively stable. Samsung, Kioxia (formerly Toshiba), and Micron are the providers of SLC. Due to a significant rise in 3D production, the proportion of the global SLC in the bit production of the NAND Flash dropped to merely 0.1%, while MLC accounted for around 6%. As the proportion of 3D NAND Flash production increases, the percentage of TLC production reached about 87% at the end of 2019, and its is expected to account for at least 90% in 2020. QLC products can only support limited areas of application. Despite the attractiveness of the high-capacity products in data centers, they are unable to be introduced into the area of smartphones out of consideration for durability and price. Therefore, growth in their proportion will be limited, with the overall production expected to be within 5% in 2020 (see Fig. 5).




Source: TrendForce Corp., February 2020

**(Fig. 5 Global NAND flash production analysis by product structure)**

If we rank NAND Flash brand manufacturers by revenue in Q4 2019, the revenue of Samsung was on top with USD 4.451 billion, up 11.6% from Q3. The main reason was that demand for data centers in Q4 2019 increased rapidly, leading to an undersupply of SSDs. In addition, the embedded products used by the SSDs and mobile devices in Samsung's data centers and notebooks occupied an important position, and their market share was up 11.6% to 33.5%, thus remaining in the lead. For Kioxia, due to the power outage at its Yokkaichi plant in June 2019, it only recovered full production capacity in November. Benefiting from increase in the demands for data centers and client SSDs, Kioxia saw its revenue in Q4 2019 increase 5.1% to USD 2.34 billion with a market share of 18.7%, thus ranking second. The bit shipment of Western Digital was up 24% from Q3 due to increase in the demand for data center SSDs and the stock of Apple phones. The revenue of its NAND Flash division in Q4 2019 was USD 1.83 billion, up 12.6% from Q3, and it thus rose to the third place. Micron also benefited from the strong SSD demand, and it extended its strength of growth in mobile devices. Its shipment of MCP products kept rising, with the revenue in Q4 2019 reaching USD 1.422 billion, an 18.1% increase from Q3. For SK Hynix, due to increase in the bit demand of the mobile phone market and strong demand for data centers, its bit shipments in Q4 2019 rose 10%. Its shipment combination continued to focus on the market of mobile devices, while it put efforts in expanding the SSD product lines. With a growth rate of about 5.4% in Q4, its revenue reached USD 1.207 billion. Intel continued to take advantage of its leading position in the server SSD market, in that data center and server customers still highly rely on Intel's products. As a result, the growth in demand has exceeded expectations. Currently, its shipments focus on the 64-layer products, and in 2020 the 96-layer products will account for most of its shipment. This is due to the failure to reduce inventory and meet customer demand for production in Q3, resulting in a huge increase of over 50% in the bit shipments during that quarter. Shipments in Q4 2019 could therefore only depend on the production capacity of Intel's own plants, causing a drop of at least 10% in the bit shipments. However, due to severe shortage in the inventory, the average unit sales price rose more than 10%, while the revenue declined 5.7% from Q3 to USD 1.217 billion, with a market share of 9.7% (see Fig. 6).

According to predictions by several survey and research institutions, due to the impact of the COVID-19 pandemic, uncertainty will hang over the market demand in the first half of 2020, and its stabilization will depend on the status of resumption at manufacturing of end products (e.g., PCs and smartphones). The impact on data centers and servers is the lowest, and their demands have remained strong. In particular, the stay-at-home economy that arises out of working from home for self-management or distribution of business risks has increased demands for data networking, shared conferences, cloud services and web connection speeds, and has made the production of servers stronger. In channel markets, due to increase in the demand of PC OEM/enterprise SSDs, manufacturers have reduced supplies to the channels. Despite lower demand in the channels, they have been able to maintain the price and even raised it further as the contract price goes up. If the pandemic is gradually controlled and the production capacity of plants recovers completely, the expected growth in demand will exceed 10% QoQ.

Unit: Millions of US$

| Company | Revenue | | Market Share (%) | |
|---|---|---|---|---|
| | 2019Q4 | QoQ (%) | 2019Q4 | 2019Q3 |
| Samsung | 4,451.10 | 11.60% | 35.50% | 34.50% |
| Kioxia | 2,340.70 | 5.10% | 18.70% | 19.30% |
| WDC | 1,838.00 | 12.60% | 14.70% | 14.10% |
| Micron | 1,422.00 | 18.10% | 11.30% | 10.40% |
| Intel | 1,217.00 | -5.70% | 9.70% | 11.20% |
| SK Hynix | 1,207.40 | 5.40% | 9.60% | 9.90% |
| Others | 69.80 | -9.90% | 0.60% | 0.70% |
| Total | 12,546.00 | 8.50% | 100% | 100% |

Note 1: 2019 Q3−USD 1 = KOW 1,193.9; USD 1 = JPY 107.3
Note 2: 2019 Q4−USD 1 = KOW 1,175.5; USD 1 = JPY 108.7
Source: TrendForce Corp., February 2020

**(Fig. 6 2019Q4 NAND flash brand manufacturer ranking by operating income)**

b. Development of products

Flash memories are generally used in ordinary consumer electronics such as smartphones, flash drives, memory cards and SSDs. As the process technology of NAND Flash continues evolving and the unit capacity cost keeps declining, their use has become widespread in smartphones, embedded devices and industrial control applications. In recent years, demands for SSDs applied in big data storage and an increasing number of notebooks have gone up, and the use of smart devices has grown fast. Furthermore, applications of and demands for data storage have greatly increased in smart homes, smart appliances, smart speakers, in-vehicle recorders, vehicle navigation systems, smart wearable devices, drones, reality technologies (VR/AR/SR/MR), future AI, big data, edge computing and cloud storage.

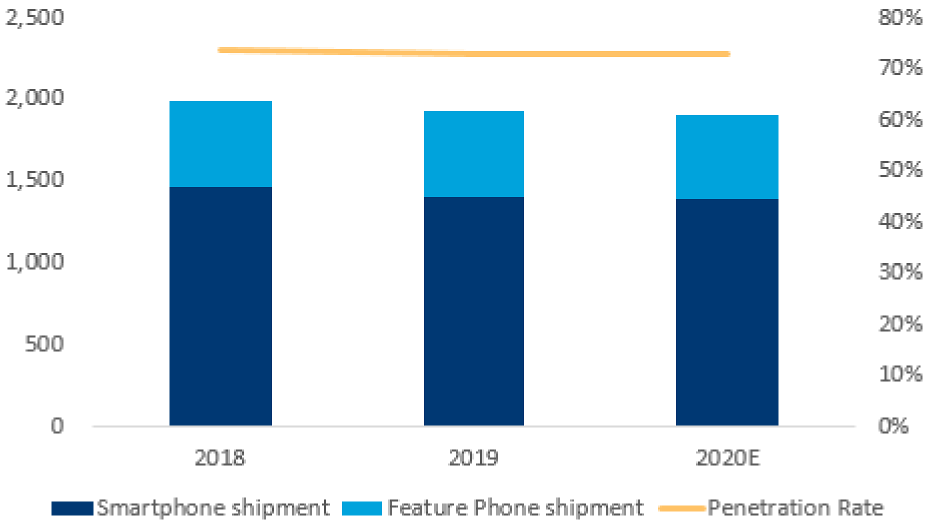
Smartphones: In 2019, the global shipment of smartphones was 1.36 billion, a 5.2% decline from 2018. Part of the reasons for the decline in the global shipment of smartphones was reduced shipment from the Chinese market, and the trend in mobile phones is no longer one of high growth. With the construction of 5G base stations, wider network coverage and higher speed, consumers are still waiting for cheaper 5G phones to hit the market. Apparently, people have deferred their demands for new phones. From the 2019 ranking (see Fig. 7), Samsung maintained its global leading position in the production of smartphones using its advantages acquired through long-term investments in the global market. In March 2020, it will release the latest Galaxy S series, new models of foldable phones and 5G phones to attract consumers. Huawei, ranked second, was affected by the US-China trade war and faced with a large amount of inventory for sale in China. In areas outside China, especially the emerging markets in India and Southeast Asia, there are still challenges for Huawei. Huawei has launched the Mate30 series in some international markets like Malaysia and Singapore, but due to its inability to install the GMS (GoogleMobile Service) system, Huawei's performance there has failed to meet its expectations. The iPhone11 series released in 2019 by Apple, ranked third, have had outstanding performance. In particular, sales of the series in the US and Europe at the end of Q4 went beyond expectation. In 2020, Apple is likely to release the iPhone SE series. If the price offered by Apple meets the expectations of users in the middle- and low-level consumer markets, Apple will be able to gain more market share in the emerging markets.

| **Ranking** | **Brand** | **Market share** | | |
|---|---|---|---|---|
| | | **2018** | **2019** | **2020 (estimated)** |
| 1 | Samsung | 20.47% | 21.53% | 21.24% |
| 2 | Huawei | 13.34% | 17.64% | 14.69% |
| 3 | Apple | 14.84% | 14.73% | 17.10% |
| 4 | OPPO | 8.60% | 10.10% | 10.99% |
| 5 | Xiaomi | 7.89% | 9.18% | 9.31% |
| 6 | BBK(Vivo) | 6.32% | 8.04% | 8.57% |
| | Others | 27.11% | 18.79% | 16.93% |
| **Total production** | | **1,441** million pieces | **1,367** million pieces | **1,351** million pieces |

Source: InSpectrum (February 2020, with the ranking based on the sales results in 2019)

**(Fig. 7 2018-2020 production ranking of global smartphones by brand)**

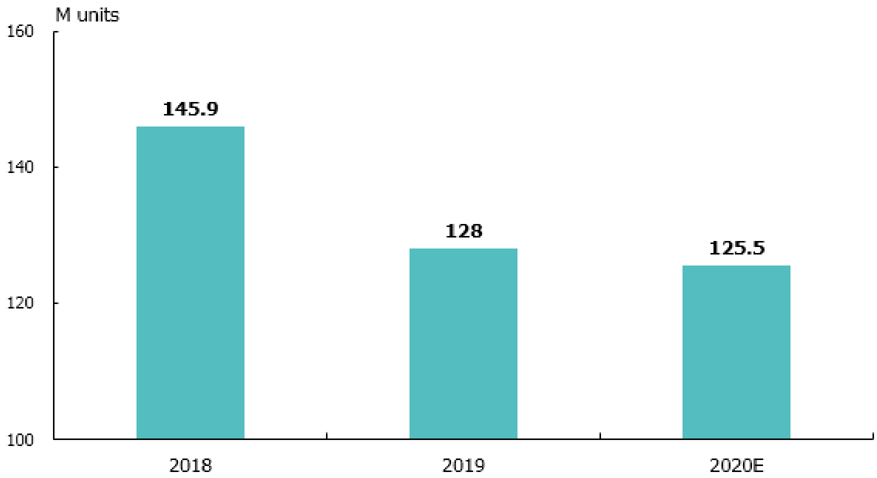
Due to a plunge in the contract prices and higher consumer demand for the use of capacity in 2019, currently the average capacity of smartphones has exceeded 100GB, and smartphones with a capacity of 128GB have accounted for most of the sales. Since the upgrade to 5G only applies to interface and has no notable effect on capacity increase, the average capacity of smartphones in 2020 is expected to be 112.5GB with a bit growth rate of 35.3%. Despite the expectation that 5G smartphones will bring a wave of mobile phone replacements in 2020, the COVID-19 pandemic has affected the domestic market of China and led to disappointing sales for Huawei in Q1 2020, while Apple has been affected by the slow resumption of work and uncertainty in supply of materials for new phones. The continued spread of the pandemic globally has made consumers spend less and is going to have an impact on the whole smartphone industry in 2020.




Source: TrendForce Corp., February 2020

**(Fig. 8 2018-2020E Growth analysis of smartphones)**

Tablet PCs: In 2019, the total shipment of tablet PCs was about 0.128 billion, which was 17.9 million or 12.3% less from 2018. Due to higher tariffs caused by the US-China trade war, Huawei's shipment in 2019 decreased 26%. Even though the brands sold in the US increased the strength of early production in response to higher tariffs, they still suffered the decline. In 2020, the shipment size is likely to be tested by the spread of the COVID-19 pandemic globally. Without taking the pandemic into consideration, the shipment in 2020 is expected to be around 0.125 billion, which may further decrease 2.4%. The capacity of tablet PCs is mainly in 16/32GB. The plan for new models will be based on the configuration of smartphones. Under the trend of transition of middle- and high-level models to 64/128GB, it will take some time for their proportion to increase, but the capacity of flagship models can be expected to reach 256/512GB. In 2020, it is expected that the average capacity will increase 25% (see Fig. 9).

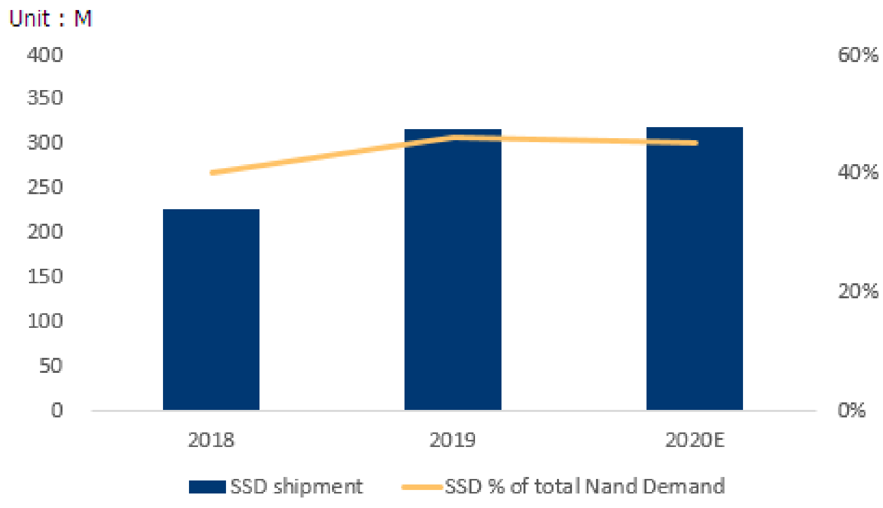


Source: TrendForce Corp., February 2020

**(Fig. 9 2018-2020E global tablet PC shipment)**

SSD: The mainstream products of SSD maufacturers have shifted to 3D 92/96L TLC SSDs, mainly with a capacity of 256/512GB and a PCIe interface. The chance for production of the 128L 3D TLC SSDs is only expected in the second half of 2020. In 2019, the proportion of the 3D TLC architecture in client SSDs reached 90%, and it is expected to remain at the same level in 2020. With regard to 3D QLC SSDs, only Intel promoted the 64L QLC SSDs and related products as its main products. In 2020, Intel will promote the 144L QLC SSDs. Only time will tell whether these products will be widely accepted by PC OEMs and whether other competitors will follow suit to promote the 3D QLC SSDs. The 2D MLC SSD target niche markets, and most SSD manufacturers have stopped producing or selling the 2D MLC SSD since the NAND Flash manufacturers have gradually reduced the output of MLC. It will be used mainly in industrial products and in-vehicle applications.

In 2019, SSD prices saw a large drop of nearly 50% YoY. As the average sales price of NB SSD reached the sweet spot, its adoption rate rose to around 78%, exceeding the expectations. It is expected to increase to 80%~85% in 2020. The decline in the SSD price has pushed up the shipment of large-capacity 512GB and 1TB. Even though 256GB is still the mainstream capacity for PC OEMs, 512GB has replaced 128GB and become the second mainstream capacity. As the trend in which the strong SSD demand at the end of 2019 pushes the 2020 price up, settles, the situation where 512GB has become the mainstream capacity is likely to occur later in 2021 (see Fig. 10).




Source: TrendForce Corp., February 2020

**(Fig. 10 2018-2020E global SSD shipment)**

With regard to the client SSD product interfaces (this generally means the SSD installed in notebooks), the penetration rate of PCIe SSD in 2019 exceeded 50%, mainly due to the fast contraction of the price difference between PCIe and SATA SSDs as a result of emergence of the Value PCIe TLC SSD. It accelerated the increase in the penetration rate of PC OEMs and channel market PCIe. Moreover, mass production of the controllers used by the Value PCIe and continued drop in their prices are also the main reasons for the reduced price difference therebetween. With boost from the Value PCIe TLC SSD, the PCIe SSD will have the chance to replace the SATA interface in large quantity and become the market mainstream product in 2020. In addition, most of the Intel CPU platforms and personal computers can support the PCIe G3 interface, and the penetration rate of PCIe has kept rising as a result. Support for PCIe G4 will be enabled on the new platforms released by Intel in 2020, and PCIe G4 will be introduced into the new-generation game consoles planned to be released by Sony and Microsoft in the second half of 2020. It is expected that demand for the PCIe G4 SSD will be stronger and that its penetration rate is likely to exceed 50%.

Application of the enterprise SSD (it generally means the SSD equipped in servers) has continued to grow steadily. As demand for equipment related to cloud computing, cloud storage, e-commerce, high-speed video streaming, live webcasting, AI, 5G and edge computing keep expanding, demand for the enterprise SSD is strong in 2020, and the volume of the enterprise SSDs purchased for servers and data centers is still growing. The NAND Flash manufacturers have given priority to supplying the demand for the enterprise SSD, and the price has increased due to undersupply. The quarterly rate of contract price rise is around 10%. Since the new game consoles that will hit the market in the second half of 2020 have adopted the capacity of SSD 512GB or 1TB in large quantity, they are definitely going to squeeze the the supply of SSDs. Furthermore, the spread of the COVID-19 pandemic has driven cloud demands for remote working and streaming services and made the growth in data center demand more significant. Despite the fact that the pandemic has led to slow PCB shipments and that the status of work resumption at ODMs will create uncertainty for shipments from the suppliers of data centers in North America, the purchase end has continued its orders. But if the pandemic gets more severe, the extent of price increases may be more limited.

Memory cards: The market of memory cards mainly relies on the demand for non-Apple phones. The sales volume of memory cards decreases with the sales decline of the smart phones. To increase the profit quality of memory card product lines in Q1, the leading memory manufacturers have started to think about bringing UFS memory cards in the market to replace the market of high end memory cards. The advantage of UFS memory cards include major advances in efficacy and supply chain manufacturers no longer needing to pay royalties. When UFS standards leader Samsung will start to support UFS memory cards in its smart phones and whether the top 5 smart phone manufacturers in China will follow suitwill be an important observation point concerning the future development of UFS memory cards. To resist the threat of UFS, the SD association plans to set a higher level standard- SD7.0 of PCle transmission structure in 2018. In addition, Huawei has released the NM memory card with their own specifications in Q4 2018 to expand their share in the market of high-end memory cards.

Flash drive: The USB 3.1 Gen1 has been renamed as USB 3.2 Gen1, and its penetration rate in Q4 2019 was about 22%~24%. The penetration rate of USB3.2 Gen1 throughout 2019 was 22%~23%, and it is expected that its penetration rate throughout 2020 will be 27%~29%. A penetration rate of over 30% may only occur in 2021. The main reason is that the power outage at Kioxia’s Yokkaichi plant in June 2019 led to reduced supply and gradual price increase since July 2019. After the channel prices rebounded greatly, they kept rising and resulted in a lower-than-expected penetration rate in 2019. Since the capacity of a 3D NAND is at least 256Gb (32GB), the USB 3.2 flash drives which have high requirements for average capacity and performance have become an important channel for reduction of the NAND Flash inventory. For the next-generation USB 3.2Gen2/Gen2x2 flash drives, two control chip manufacturers have planned to release the corresponding solutions, and the relevant products are likely to hit the market only in 2020 at the earliest. The USB3.2 Gen2x2 has adopted the new specifications of the PCIe architecture.

Market of in-vehicle applications: In 2019, the global car sales declined 5% to approximately 86.95 million cars, and the size of the global electric car market has continued to expand in response to national carbon reduction plans worldwide. Growth in purely electric cars has accelerated, and the number of cars sold is expected to exceed 5 million in 2019. Additionally, more countries have required cars to install all types of advanced driver assistance systems (ADAS) and have added mandatory items. For instance, the United States announced that beginning from September 2022, new vehicles should be equipped with Autonomous Emergency Braking System (AEB) and Korea required the installation of Autonomous Emergency Braking System and Lane Departure Warning System (LDWS) from 2019. The European Commission proposed a new motion (waiting for deliberation) of installing 11 safety systems from 2021, including fatigue monitoring systems, attention assist detection systems, emergency braking systems, active cruise control systems and lane keeping assist systems. According to a survey by IHS, the number of self-driving cars will grow at a pace of 63% between 2020 and 2040, and in-vehicle storage products and technologies have brought higher requirements. Self-driving has redefined storage demand, and suppliers of storage solutions are faced with new challenges in storage capacity, speed and safety. With regard to storage capacity, the demand of self-driving for storage capacity is fast rising. The levels of self-driving are divided into: L1 (Driver assistance), L2 (Partially automated), L3 (Conditionally automated) and L5 (Fully automated). Different self-driving levels require different capacities for internal DRAM storage. At the same time, the demand of L5 self-driving for NAND will reach 1TB in 2025. Self-driving has enhanced requirements for bandwidth. L1-L3 require the eMMC, while L3-L4 require the UFS/PCIe. Its technical requirements are apparently higher.

| 智能車 | 2017 | | 2020 | |
|---|---|---|---|---|
| | DRAM | Flash | DRAM | Flash |
| 導航娛樂系統 | 1/2GB DDR3 | 16/32GB eMMC | 8GB LPDDR4 | 64/128GB UFS/PCIe SSD |
| ADAS駕駛輔助系統 | 4/8GB LPDDR3/4 | 512Mb NOR Flash | 22GB LPDDR4 | 64/128GB UFS/PCIe SSD |
| 儀表系統 | 1GB DDR3 | 512Gb SLC Flash | 2GB LPDDR4 | 8GB eMMC |
| Total | 8GB | 25GB | 32GB | 200GB |

Source: China Flash Market, January 2018

**(Fig. 11 Demand of the automobile market for memory explodes in 2020)**

Smart speakers: Following the trends of smart phones, tablets, smart wearable devices, smart TVs, PTT boxes and dashboard cameras, smart speakers have gradually evolved from toys for just a few users to a part of the daily life of more and more families. In Q4 2019, the global market size of smart speakers reached over 55.7 million, a significant increase of 17.2 million or 44.7% compared to the same period last year (see Fig. 12). Data of the market research institution Strategy Analytics shows that Amazon and Google remained the big winners in the global smart speaker market in Q4 2019. With market sales of 15.8 million and 13.9 million respectively, they ranked first and second in the global smart speaker market and continued their outstanding performance. Besides Amazon and Google, Chinese brands of smart speakers such as Baidu, Alibaba and Xiaomi also osted great performance. Currently, basic-level smart speakers are equipped with small-capacity 1Gb/2Gb DDR3 and 1Gb/4Gb SLC Nand Flash. Smart speakers with middle and high prices are equipped with 4Gb/8Gb DDR3L and 4GB MLC/8GB eMMC. The memory capacity used for smart speakers is different from those of smart phones and tablets that use a high capacity of 64GB, 128GB and even 256GB, 512GB or 1TB and can quickly consume a great production capacity of the memory. However, as the constantly development of IoT, cloud applications and the artificial intelligence technologies, the integration of the smart speakers with screens can achieve more applications in different scenarios. Smart speakers with screens are mostly equipped with low-power 1GB/2GB LPDDR3 and 4GB/8GB eMMC. Growth in smart speakers with screens is faster than that in ordinary smart speakers, and the growth in global shipment reached 6.3 million in Q3 2019 with a high growth rate of 500%. The manufacturer that relies on smart speakers with screens the most is Baidu, whose shipment was 2.3 million, more than 60% of Baidu's shipment of speakers with screens. For other brands, the proportion was mostly around 20%. The shipment of smart speakers with screens from Amazon, Google and Xiaomi were 2.2 million, 0.7 million and 0.6 million respectively. It is expected that the annual growth rate of smart speakers in 2020 may be around 35%, with the total shipment reaching 0.174 billion.

| 品牌 | Q4'2019 | Q4'2019 市佔率 | Q4'2018 | Q4'2018 市佔率 | YoY |
|---|---|---|---|---|---|
| Amazon | 15.8 | 28% | 13.7 | 35% | 15% |
| Google | 13.9 | 25% | 11.5 | 21% | 21% |
| Baidu | 5.9 | 11% | 2.2 | 4% | 168% |
| Alibaba | 5.5 | 10% | 2.8 | 5% | 96% |
| Xiaomi | 4.7 | 8% | 1.8 | 3% | 161% |
| Apple | 2.6 | 5% | 1.6 | 3% | 63% |
| others | 7.4 | 13% | 5 | 9% | 48% |
| **total** | **55.8** | **100%** | **38.6** | **80%** | **44.7%** |

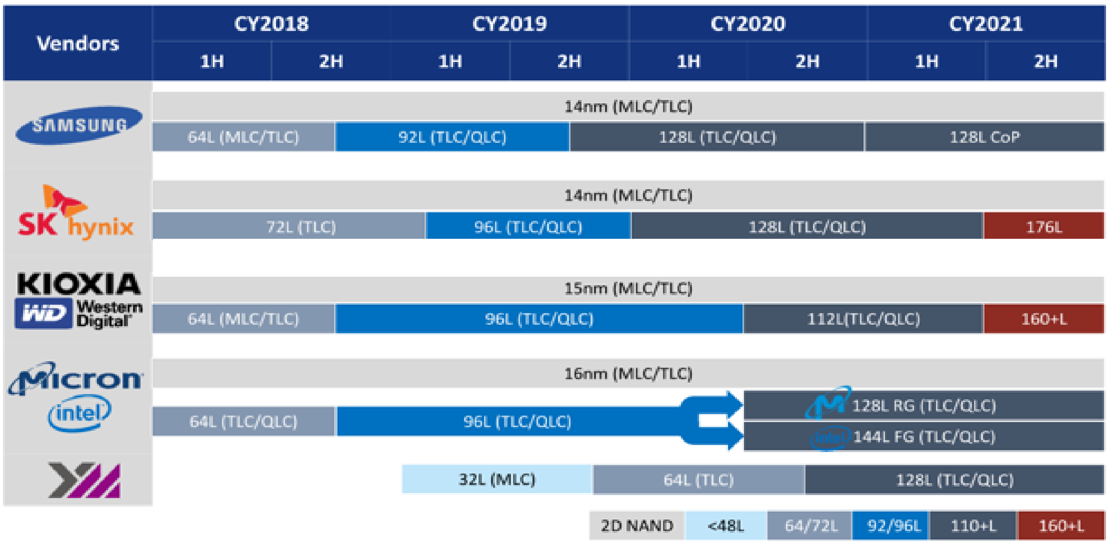
Source: Market research institution Strategy Analytics, February 14, 2020

**(Fig. 12: Ranking of sales of smart speakers in Q4 2019)**

c. Main flash memory suppliers' status

(a) Process transfer schedule of flash memory

2D models are stuck at 14~15 nanometers. Due to the difficulty in miniaturizing in following production process, 2D model miniaturization will not continue. All manufacturers prioritized upgrading their production process techniques and accelerating mass production. Since the second half of 2019, the manufacturers have gradually raised the percentage of 96L production, and the proportion of mass production can be expected to exceed 50% in the first half of 2020. On the other hand, Samsung, Kioxia, Micron and SK Hynix have all released 128L 3D technologies. With each upgrade in the 3D technology, the capacity of Dies from mass production stays the same. As the size of a Die decreases, the number of Dies produced with wafers of the same size increases, and the cost is further reduced. Widespread use of the 128-layer 3D NAND in the market is expected only after 2020, and its production will gradually increase from 2021 onward. Then the production of NAND Flash will rise further with more drop in the unit cost to help push the consumer SSDs and mobile phones up to at least 1TB. SK Hynix is planning to mainly use the 128-layer 3D NAND to develop the next-generation UFS 3.1 products for the customers of high-end flagship smartphones in the first half of 2020. With larger capacity, higher speed and lower power consumption, such products will be the best solutions for the next-generation mobile market. As 5G explosion has brought new business opportunities for applications, the products can provide power for recovery of the global demand for smartphones in 2020. (For detailed description of the 2D/3D product technologies of manufacturers, see Fig. 13)



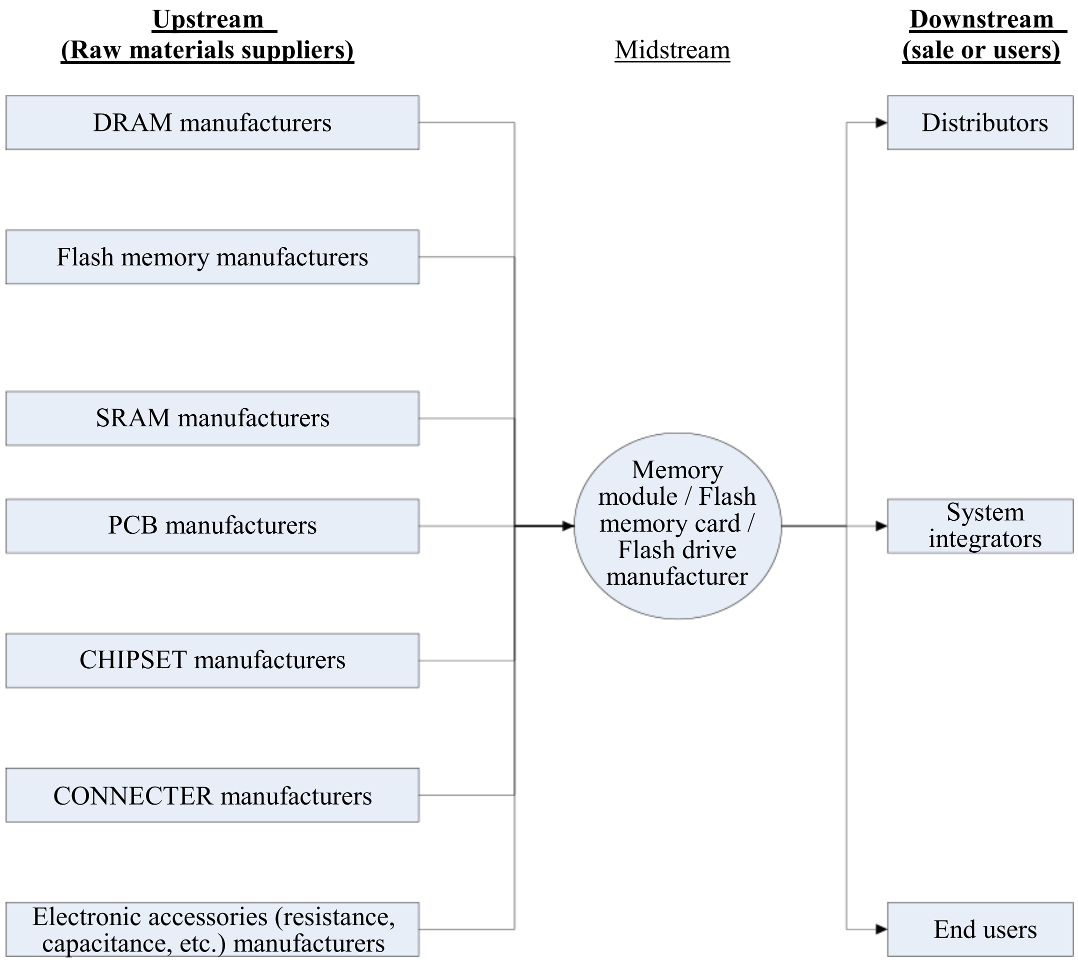

Source: TrendForce Corp., February 2020

**(Fig. 13 NAND Flash 2D/3D products technologies of manufacturers)**

(b) Industry supply and demand development

In 2020, the NAND Flash industry is expected to see strong recovery. According to IC Insights, the NAND Flash will grow 19%, and its main momentum for growth will come from the markets of 5G, AI, deep learning, virtual reality, data centers, cloud computing servers, cars and industrial control. Regarding supply, suppliers have reached the break-even point or shown losses since Q2 2019, so they have to reduce their capital expenses in 2020, and their schedules for the expansion of production capacity and the number of 3D layers are more conservative than those in the past. Based on the overall plans of manufacturers, bit production in 2020 will increase only slightly over 30%, the lowest point among the planned targets for the past years. In addition, the bit supply in 2019 was revised down due to the power outage accident, and production increase has been under 35% for two consecutive years. It is the first time such a situation has occurred, and the supply and demand in 2020 will be further tightened as a result.

B. The relationship between up, middle and down stream in the industry



C. The development trend of each product

(A) the development trend of memory modules

Memory modules are mainly used in PCs, servers and mobile devices. Due to the new techniques and process, the function of DRAM upgrades rapidly. Its development mainly follows the following trends:

a. High capacity:

With the CPU function strengthened, DDR4 becomes the main memory format and will enter DDR5 in 2020. At the same time, the mainstream capacity of DRAM IC has shifted to 8Gbit, and part of the demand will shift to 16Gbit in 2020. The capacity of RAM module gradually shifts from 8GB to 16GB because of the product specification upgrade, and the 32GB market will slowly emerge. The main specification of the memories used in servers has moved from 32GB toward 64GB, even slowly growing to the use of 128GB.

b. Low power consumption and low voltage:

With the trend of light, thin, short and small in system products, product development will be geared toward low power consumption and voltage; and with the trend of voltage and power consumption decrease when performing a system product, RAM module product is shifting from DDR3 1.35 volt to DDR4 1.2 volt now.

c. Hight speed:

In coordination with the speed growth of CPU, the processing speed advance of DRAM has become very important. In 2019, the main specification of the DDR4 memory modules was 2666MHz. It will gradually shift to 3200MHz in the second half of 2020.

(B) the development trend of flash memory

a. The capacity expansion of smartphones and SSD is the main growth momentum. Due to a drop in the prices of NAND Flash, the capacity of mobile phone memory and SSD has increased. For application of the enterprise SSD, the average capacity has increased with the high growth in cloud computing and the rise of IoT. According to the market intelligence provider Trendforce, the overall bit demand in 2020 is expected to reach 414,373MGB with an annual growth rate of 33.2%.

b. After three years of decline in the global smartphone market, China is very active in its intention to promote 5G. Therefore, the global shipment of smartphones in 2020 is estimated to be 1.35 billion, and the proportion of 5G smartphones in the global shipment of smartphones is likely to be up to 14%.

c. Taken all together, the biggest demand in NAND Flash application field still comes from mobile devices and data center servers, such as the promotion of the capacity of smart phones, tablet PCs and SSD. With the leading of the IoT trend, the rapid growth of intelligent devices, the need and application of data storage on smart robots, smart appliances, smart speakers, and wearable devices, IoC, vehicle navigation systems, smart wearable devices, drones, big data computing and future AI devices, the growth of NAND Flash application is worth expectation.

(3) Techniques and research development status

A. The R&D expenses in the recent years and as of the date on which the annual report is printed

Unit: TWD 1,000

| Year | 2018 | 2019 | As of March 31, 2020 |
|---|---|---|---|
| R&D expenses | 120,479 | 117,884 | 33,856 |

B. R&D status of Apacer

Devoted to the memory storage technology and related application market, Apacer's products of the memory and storage device technology has covered the consumer and industrial application market. By accumulating our technology capabilities and developing a deep understanding of the memory storage application need, we continue to invest resources for hardware, software, firmware and institutional development, creating and developing the SSD storage model that industrial application needs. Moreover, based on the knowledge of the firmware and structure of SSD storage, we can swiftly provide customized storage solutions tailored to specific client needs. Based on the development of core storage techniques, we raise the stability and credibility of products. Based on the trend in the development of storage interfaces, we are more devoted to developing PCIe (PCI Express) interface SSD storage techniques, providing the storage need of newer generation transmission interface.

Policy toward developing new technologies and products includes memory and SSD application integration and innovation. With these, we actively satisfy our costumers' needs and provide them with thorough solutions. We have developed and released optical inspection devices and wired/wireless transmission modules along with establishing the industrial IoT and intelligent IoT platform and promoting it to the industrial application field.

In addition to designing and developing higher compatibility format to fit various usage needs, we also devote ourself to developing strategies for mobile SSD storage and the development of application products related to mobile digital storage in the consumer market. We brought out many kinds of high speed USB 3.1 flash drives and external hard drive, fingerprint encrypted flash drives and multi-purpose flash drives. This year, we intently invested R&D resources to the gaming market, undergoing many product developments, including FRAM, RAM modules that have LED lighting functions and ultra-high speed transmission SSD, etc. We also continued to develop multiple integration technologies for the gaming computer.

As for R&D, we have been granted 196 approved patents for our products in Taiwan and other countries. 43 patent applications are currently pending.

C. R&D outcomes

| Year | R&D outcomes |
|---|---|
| 2019 | 1. The widely popular co-branded illustrator collection from Apacer Technology is extended with a new addition. This year, we collaborate with the illustrative brand Ning' s to launch Apacer X Ning's AH23A flash drives—"Opportunity", "Resolution" and "Challenge" based on the creative concept of "Be Your Best", as well as the AC233 portable hard drive —"Confidence", using full positive energy to awaken the courage deep within your heart to pursue dreams and surpass yourself to be the best you can be! The co-branded "Apacer X Ning's" series of the AH23A flash drives are full of positive energy and has a comforting effect. With the thoughtful strap hole design, they are able to stay beside the user and become the source of heartwarming and encouraging power. The AC233 portable hard drive has a large storage space of 1TB and can completely record every valuable memory of the user. Full of positive energy, it stays by your side during all important stages in your life.<br>2. Apacer introduces the second generation fingerprint flash drive AH651 with a USB 3.1 Gen 1 high-speed transmission interface, available in three models with capacity of 32GB, 64GB and 128GB. It is equipped with dual unlocking options: fingerprint recognition and password, along with a brand-new "partition defense" function. For best protection, the storage is divided into two partitions: the "secure partition" can only be unlocked with fingerprint recognition or password, while the "public partition" can be conveniently used and accessed to balance safety and convenience. With AH651, users have the full control and management of their data security! AH651 uses the latest capacitive fingerprint recognition technology that enables 360° all-angle fingerprint reading. With fast reading speed and high precision, AH651 has a newly added password login function, and its user may choose the most appropriate unlocking method based on the situation of access. It has clearly differentiated access permissions and an enhanced control system, allowing the primary administrator to register and manage ten sets of fingerprint data. The flash drive is equipped with the whole new function of "partitioned protection", which divides the storage space into "public partition" and "secure partition". It can flexibly adjust the size of storage space in the two partitions to prevent confidential data from being mistakenly transmitted or stolen to build the strongest information security defense of flash drives for business people.<br>3. As the SSD leading brand, Apacer has launched the AS2880P4 M.2 PCIe Gen3 x4 SSD, allowing gamers to easily enjoy superb read-write performance of 3,200/2,000MB and 360,000 IOS per second. AS2880P4 conforms to the NVMe1.3 specifications and adopts the latest 3D NAND TLC stacking technology that gives it the leading advantage in capacity, speed, performance and reliability. With an ultra-thin 2.25mm & 22mmx80mm ultra-small body, AS2880P4 has effectively increased the device capacity and kept its size extremely small to provide more space for gamers to be creative in assembly. Its capacity can reach a maximum of 480GB, perfectly satisfactory for the strict demands of hardcore gamers, photo retouchers and professional CAD 3D model designers for speed and capacity. Built-in protection technologies: The S.M.A.R.T. Intelligent monitoring technology enables self-testing of the SSD health. The 72bit/1K ECC error debugging protection technology and the End-to-End Data Protection full data channel protection capability are able to test data integrity and accuracy. The global Wear-leveling increase the average life of SSD and effectively ensures data accuracy and stability. |

| Year | R&D outcomes |
|---|---|
| | 4. Apacer has released NOX RGB DDR4, the brand-new DDR4 desktop gaming memory with the ultra-wide angle RGB light diffusion technology. Using the unique ultra-wide angle RGB light diffusion technology, the memory contains an exquisite engraving light diffusion design and a top-class aluminum alloy case body with excellent heat sinks. Through its mysterious, minimalist and low-key design, the all-angle, natural and balanced RGB color light brings out the dark and mysterious power for top-class players to enjoy extremely fast gaming and overclocking experience. NOX RGB DDR4 has received software certifications from major motherboard manufacturers, including ASUS AURA sync, GIGABYTE RGB Fusion, MSI Mystic Light Sync and ASRock Polychrome Sync. It can easily control the RGB memory lighting effect and support synchronization with the system lighting. The user is free to customize the lighting design based on his/her personal preference to reflect his/her unique personal style. NOX RGB DDR4 supports the Intel® XMP 2.0 overclocking technology, which enables easy one-key operation for overclocking to immediately demonstrate the top-class oveclocking performance of the Intel platform motherboard.<br>5. For the widely popular co-branded illustrator series of Apacer, the limited 3D figurine series "Hope" and "Courage" have been released. This year, Apacer has collaborated with the illustrator brand Ning' s to launch a limited edition of the Cute Little Blue 3D-style flash drive. The vivid and cute 3D style doubles the positive energy, and it can be placed on the table edge as decoration or become the thoughtful design of a small and comforting toy, offering more possibilities for fun interactions to the co-branded flash drive. Heartwarming "Hope" is always by your side: Sitting on a big heart, the cute Little Blue is always there to comfort you whenever you feel down. The heart is the flash drive that saves precious memories to allow us to experience the touching moment during the happy time again. Little Blue can become a figurine that sits on an office desk or computer monitor, reminding us with a smile that: "Hope is just ahead and has never left. Do not forget this!". "Courage" out of the cocoon: "Release the courage deep in your heart!" Hesitation and fear are just temporary psychological barriers. Use the power you desire most to awaken another you who is brave! Wearing a dinosaur suit, Little Blue seems to find the courage to move forward and encourage the hesitant self. Two figurine styles are available for the flash drive, offering more possibilities for fun interactions to the co-branded flash drive.<br>6. As the SSD leading brand, Apacer has for the first time launched a thermochromic SSD, the AS2280P2 PRO M.2 PCIe SSD to create new gaming experience. It is equipped with the unique, creative and thermochromic "Battle Armor" to reproduce the surprise and thrill of upgrading during a deadly battle. Under normal temperature, the "Battle Armor" appears in a blood-boiling tangerine. When the battle heats up, it will transform into a shiny, golden battle armor that stays with the player on the battlefield for exciting gaming experience. Apacer AS2280P2 PRO is in conformity with the NVMe1.2 specifications. Its continuous read-write speed can reach a maximum of 1,580/950 MB, and its random read-write speed can reach 92,160 IOPs. It adopts the M.2 ultra-thin and small-size design and the latest 3D NAND Flash stacking technology which can effectively increase the device capacity and enjoy multiple advantages in shock resistance, crash resistance and low power consumption. |

| Year | R&D outcomes |
|---|---|
| | 7. With the coming of the PCIe 4.0 age, the globally leading digital storage brand Apacer has released AS2280Q4, the next-generation M.2 PCIe Gen4x4 SSD of the highest specification. It has been developed for high-level graphic and image design and editing, AR/VR game editing and professional gamers. It supports the latest PCIe 4.0 specification and conforms to the NGFF standards. It provides different options for capacity of 500GB/1TB/2TB, and it can achieve a maximum of over 5000 MB/s in reading and 4400 MB/s in writing. In addition, the exclusive heat sink installed on it effectively lowers the temperature of the PCIe 4.0 SSD to maintain the best read-write performance. It is the best match for the X570 platform newly released by AMD, allowing professional users to enjoy unprecedented ultra-speed experience.<br>8. Apacer has released the brand-new Apacer AC236 USB 3.1 Gen 1 portable hard drive series: Being the most lightweight “ultra-thin series”, it is available in four colors, namely “flashy blue”, “energetic yellow”, “extreme red” and “stormy black”. With vibrant and bold lines and a dazzling style of confidence, the series reflects the attitude youth ought to have and the strong opinions of the next generation. With a bright and colorful design, it uses exquisite matte texture materials that are scratch-proof, wear-resistant and fingerprint-proof to keep its perfect look. It is available in two options: 1TB and 2TB. It weighs only 139.5g with a thickness of just 10.8mm. Being so light and thin, it can be carried without any burden. The “large-capacity series” has a maximum capacity of up to 1TB, satisfying the demand of the digital new generation for mobile storage. The AC236 series uses the latest smart power supply management technology. If no data is transmitted within 10 minutes, its will automatically switch to power-saving mode , whichsignificantly reduces power consumption. The high-quality USB Type-A female socket has passed the strict insertion and withdrawal test conducted 10,000 times, and it can be used for a long time without wear or loosening to ensure stable reading and use of data.<br>9. With the coming of the PCIe 4.0 age, Apacer has released AS2280Q4, the next-generation M.2 PCIe Gen4x4 SSD of the highest specification, to the market. Designed with the PCIe interface, it supports the latest PCIe Gen4x4 specifications, provides excellent performance and functions 10 times faster than ordinary SATA SSDs, and is compatible with PCIe 3.0. AS2280Q4 can achieve a maximum of 5000+ MB/s in reading speed and 4400+ MB/s in writing speed. Its 4K random writing speed can reach 750,000 IOPs per second. AS2280Q4 provides an ultra-large capacity of 2TB, which ensures higher efficiency and reliability under the delicate size of 22mmx80mm. Through the OP (over-provisioning) space reservation technology, AS2280Q4 can perform garbage collection, wear-leveling and bad block management with great efficiency to extend the SSD’s service life. AS2280Q4 possesses all the M.2 PCIe NVMe technological advantages and conforms to the NGFF standards. It is available in different options for capacity of 500GB/1TB/2TB, and its three-year warranty provides assurance and protection. In addition, it is equipped with an exclusive heat sink whose special diversion cutting design can effectively lower the temperature of the PCIe 4.0 SSD to maintain its best read-write performance. To embrace the latest 5G technology, AS2280Q4 provides the best solutions to the applications of ultra-thin notebooks, performance computers, gaming computers, mini PCs and embedded devices in relation to AI, AIoT, AR/VR, eSports and high-definition video. |

| Year | R&D outcomes |
|---|---|
| | 10. With the customization experience and technologies accumulated over many years in the technology industry, Apacer has focused its development momentum on smart agriculture. Apacer has launched an environmental monitoring system and smart lighting inspection technology to work together with customers to start moving toward agricultural transformation. For development of the smart environmental monitoring system, Apacer has reassessed the safety requirements of hen houses to ensure all sensors and communication interfaces meet the on-site needs. Through a standard communication interface, connection is created with the existing automated systems such as waterlines and fans to effectively build a comprehensive and precision environmental monitoring system. Apacer has broken the high threshold in smart applications in the agricultural environment. From different agricultural aspects including eggs, broiler houses and plant factories, it has invested in the development of smart system integration and optical inspection technology, with actual integration and application with the industry.<br>11. ZADAK is a gaming brand created by Apacer for its gaming business products. For its gaming brand ZADAK, Apacer has released the brand-new MOAB II Ulitimate water-cooled computer. It adopts a customized CPU water-cooling device with movable design and is compatible with various types of motherboards. It is the the first portable water-cooled personal computer worldwide. Featuring the RGB ambient light effect, the computer uses CNC magnalium materials. It is equipped with a water-cooling distro plate module, digital water temperature display, capacitive touchscreen switch and customized 240mm cold type, providing powerful cooling performance.<br>12. For its gaming brand ZADAK, Apacer has released the brand-new SPARK water-cooled PC. It adopts a movable ARGB CPU water-cooling device and is compatible with various brands of motherboards. It is the the first computer with water-cooling cold type module design worldwide, providing powerful cooling performance. The customized and exclusively designed ARGB CPU water-cooling device has excellent performance and high-quality design. The PC is equipped with CNC magnalium proprietary water-cooling distro plates, touchscreen switch and real-time water temperature display. It also features the RGB ambient light effect.<br>13. For its gaming brand ZADAK, Apacer has released the brand-new SHIELD II water-cooled PC. As the thinnest water-cooled personal desktop computer, It takes into account both aesthetics and performance and can be used for dual purposes, placed anywhere and hung on the wall. With a proprietary design of CNC magnalium proprietary water-cooling distro plates, the PC is equipped with a specially designed 360mm heat sink that allows you to experience excellent colling performance. The PC is equipped with a touchscreen switch, real-time water temperature display and customized CPU water-cooling device. It also features the RGB ambient light effect.<br>14. For its gaming brand ZADAK, Apacer has released the brand-new SPARK AIO all-in-one water-cooling device. It has uniquely designed water-cooling fans that are extremely silent and fast-rotating. With a high-quality design of the outer cover plate of the gloss coating water pump, the device combines the ARGB light effect and exclusively powerful cooling performance design that takes into account both aesthetics and performance. The device also uses fine nylon sleeves for reinforced protection pipelines to become more powerful, durable and silent and enhance its excellent cooling performance. With a design for super fast and easy installation, the device enables players to comfortably experience the DIY easy installation of the computer. |

| Year | R&D outcomes |
| --- | --- |
| | 15. For its gaming brand ZADAK, Apacer has released the brand-new SPARK RGB DDR4 memory, which is equipped with a high-quality magnalium heat sink with unique design to provide excellent cooling performance for internal storage. The memory can achieve perfectly full RGB light synchronization in combination with ASUS AURA Sync, Mystic Light Sync, RGB Fushion, Polychrome Sync and Razer Chroma. It fully supports XMP 2.0, and its user can easily enjoy an excellent and stable gaming experience with the one-key overclocking feature. The memory adopts the next-generation MCU control to achieve personalized ambient lighting effect. Featuring the five-stage ultra-wide angle RGB lighting effect, it is able to show RGB light that is brighter, more shiny and with more layers. Its frequency can reach 4266MHz. It is fully compatible with the Intel 100, 200 and 300 series platforms.<br>16. For its gaming brand ZADAK, Apacer has released the SHIELD DC RGB DDR4 memory, each with a doubled capacity of 32GB and a frequency of up to 3600MHz. It also has high stability. The memory supports the AURA2 Sync synchronization to achieve perfect RGB lighting effect. It is compatible with the Intel Z390 platform, suitable for content creators and 3A gamers.<br>17. For its gaming brand ZADAK, Apacer has released the SPARK RGB DDR4 internal storage, which is equipped with a high-quality magnalium heat sink with unique design to provide excellent cooling performance for internal storage. The memory can achieve full RGB light synchronization in combination with ASUS AURA Sync, Mystic Light Sync, RGB Fushion, Polychrome Sync and Razer Chroma. It supports XMP 2.0, and its user can easily enjoy excellent and stable experience with the one-key overclocking feature. Featuring the five-stage ultra-wide angle RGB lighting effect, it is able to show RGB light that is brighter, more shiny and with more layers. Its frequency can reach 4266MHz. It is fully compatible with the Intel 100, 200 and 300 series platforms. The memory adopts a unique technology with patented special aluminum bar design to perfectly demonstrate full RGB light effect. It also adopts the next-generation MCU control to achieve personalized ambient lighting effect. It possesses fashionable high-quality design, excellent stability and cooling performance.<br>18. For its gaming brand ZADAK, Apacer has released the MOAB RGB DDR4 internal storage that can be perfectly compatible with the Intel 100, 200 and 300 series platforms. The storage supports RGB lighting synchronization to show perfect RGB lighting effect. It has an attractive appearance and super high performance that has been well recognized. Through the exclusively developed software ZArsenal, it can adjust the RGB colors and lighting effects without downgrading the performance.<br>19. For its gaming brand ZADAK, Apacer has released the MOAB M.2 RGB cooling device. Using specially designed buckles, it can be fully compatible with most M.2 SSDs in the market. Through an unprecedented combination of these two technologies, it provides powerful cooling performance. It uses the latest 5V ARGB technology to demonstrate the beautiful RGB lighting synchronization.<br>20. Apacer's Smart IoT intelligent environmental monitoring system uses the ZigBee wireless technology to connect and integrates multiple types of sensors. It also innovatively integrates with a smart police and fire reporting system and the LINE communication software. Based on the market demand assessment during the development process, Apacer's team has found that the "real-time multi-party reporting" for error reporting is one of the most essential parts. When an emergency situation occurs, a reporting safety protection network is a necessary measure. However, in many accident cases, omission in reporting or failed reporting perceived as successful reporting often causes greater personal and |

| Year | R&D outcomes |
| --- | --- |
| | property losses. The best solution to prevent such situations is real-time multi-party reporting. Aware of such a trend, Apacer's R&D team aims to develop highly flexible solutions. It has created a platform for consultant participation, and it is committed to providing comprehensive development packages through Apacer's IIoT system integration package (SRP), including gateways and web page connection services. Based on years of experience in system integration, the team is able to assist system integrators in achieve the smart transformation of "what you desire is what you get" at the most economic cost.<br>21. Apacer, the globally leading industrial control memory brand, has released the full series of the DDR-4 3200 server and industrial-grade memory, which fully supports Intel and AMD high-level server processor platforms. It targets the demands for server applications and edge computing real-time processing to strengthen investment in industrial-grade high-performance memory products. In the age of 5G, with fast and real-time big data transmission and the trend in AI computing, the demand of data centers, servers, edge devices and other industrial control applications for high-speed computing are large. Whether it's Intel's second-generation Xeon expandable server processor Cascade Lake and the Ice Lake series processor that targets high-level and AI applications, or AMD's second-generation EPYC server processor Rome, Ryzen 3000 and Ryzen Embedded V1000 series processor, they all support memories with specifications of up to 2933MT/s or 3200MT/s. They are going to create the next wave of growth momentum for high-performance servers and industrial-grade memories.<br>22. Together with Robelf and EcoLumina, Apacer has used the IoT technology to develop the "Smart IoT smart ward environmental monitoring system". Designed exclusively for long-term care facilities, the system includes complete environmental detection devices which combine robot-assisted ward rounds and remote monitoring equipment and integrate with an automatic fire reporting system. It can significantly lower the risk in accident reporting error/omission and human costs to solve the problems in institutional operations. All levels of long-term care wards are able to undergo painless smart upgrade with the system. The system has successfully been demonstrated and tested in the special care classroom of the Department of Senior Citizen Service Business at St. John's University.<br>23. With the start of deployment of the 5G commercial network globally, expectations are high for the local development of applications of edge computing, IoV and IIoT. Apacer, the globally leading industrial control memory brand, has started from the industrial-grade wide-temperature product lines. In addition to having the most complete industrial-grade wide-temperature 3D NAND PCIe SSD solutions in the industry, Apacer has recently released the DDR4 2666 high-performance wide-temperature memory, the first of its kind to adopt Samsung's industrial-grade wide-temperature IC, with the aim to comprehensively plan for the application of intelligent connectivity and gain advantages in the competition for the 5G application market.<br>24. Apacer has continued to closely cooperate with first-tier major gaming businesses worldwide and actively develop advanced technologies based on the application nature and demand of the gaming industry. It has, for the first time, released the CasinoPro™ technical solution and the 3D NAND SLC-liteX technology, which can provide a P/E cycle of up to 30,000, to establish itself firmly in the global gaming storage market. To provide the best multimedia entertainment experience, the technologies of high-level image processing and high-resolution display are gradually causing innovation in the global gaming industry, and demand for high-performance storage and memory products has grown as a result. In response to |

| Year | R&D outcomes |
| --- | --- |
| | this trend, Apacer has utilized the complete industrial-grade wide-temperature 3D NAND PCIe SSD product line and developed the CoreGlacier™ technology for the problem of deceleration in the overheating of PCIe SSD. With a unique cooling structure and micro fan mechanism design, it can make air flow faster to increase the cooling speed of the product, thus effectively lowering the temperature while maintaining high-performance processing for the product. In addition, having observed that data error or loss often occurs as a result of the forcible shutdown of gaming computers, Apacer uses the DataDefender™ technology to ensure the integrity and stability of data transmission during power failure.<br>25. Apacer, the leading industrial control storage and memory brand, has released the latest rugged memory XR-DIMM. It passed the US RTCA DO-160G test for airborne equipment, becoming the first industrial-grade memory module with certification for airborne equipment globally. Designed for application under highly vibrating circumstances, Apacer's XR-DIMM is in strict conformity with the requirements of industrial-grade memory module for the highest reliability to enter the supply chain of the aerospace industry. Using the innovative design of a 300-pin rugged connector and installation hole, Apacer's XR-DIMM is able to be tightly connected with the motherboard. When its client system is operating on a bumpy road or sea, accidentally hit something or constantly vibrating, XR-DIMM is able to maintain high shock resistance and prevent the risks of detaching and loosening. It thus meets the strict requirements of the industrial application high-level niche market for the reliability of memory products.<br>26. Apacer has demonstrated the full series of the storage solutions developed for the AIoT/IoT market and high-speed storage applications. Meeting the demands of the AIoT/IoT generation for speed, they are able to solve the durability risk arising from long-time and uninterrupted data reading and writing. They can take full advantage of the cost and performance synergy of SSDs to significantly improve the operating benefits of business users. Different from commercially available USBs, the brand-new super-high-speed Turbocharged USB is developed exclusively for high-speed applications and small data storage. Adopting a two-phase process, the Double-barreled Solution first record and analyze user actions via CoreAnalyzer2, such as work load, frequency of data deletion, amount of continuously written data and random access rate, to further develop the most suitable SSD product and firmware for the application. In the second phase, it uses SSDWidget2.0 for remote rel-time monitoring of SSD health to prevent unexpected risk of shutdown and simultaneously perform self-testing and performance optimization. The two-phase function of the Double-barreled Solution can keep the SSD under the best condition of use and optimize the storage performance.<br>27. With fast development of the display technology and gradual maturity of the small pitch display technology, the module size and driver IC pitch are getting smaller and smaller, and the corresponding new-type optical inspection demands have arisen as a result. Apacer's R&D team has been the first to propose the use of a removable micro diametric shade tube design to effectively overcome the measurement obstacles caused by an overly small range of measurement for a single driver IC and single LED module, breaking new ground for small pitch LED optical inspection. |

| Year | R&D outcomes |
| --- | --- |
| | 28. In the application field of the industrial control market, Apacer has developed the application product NPLink SSD for the next-generation PCIe transmission interface. It includes the NPLink dual SSD that combines with the enhanced cooling technology of micro blower-type fans and the micro composite dual-interface SSD module. |

(4) Long-term and short-term business development plans

A. Short-term business development plan

We are committed to the visions of “integration of digital storage, innovative application and value-added services to become the most reliable business partner” and “becoming the top manufacturer in the integration of IT-enabled information services with digital storage as the core technology”, and we encourage our employees to implement the core brand value of “good partnership” by integrating “keeping our word, insisting on the best and advancing with our partners” into their daily work and providing products and services beyond customer expectations. In line with the recent technological trend in the development of 5G, big data, IoT and AI, we have actively invested in the development of digital storage products and smart application services that combine cloud and IIoT. We have also continued to improve consumers’ user experience, and we seek to expand the market share of gaming products with the ZADAK brand. The following is a brief description of our strategic plans:

(A) Expanding value-added services and investing in the industrial control market

For industrial control products, we are deeply aware that besides stable quality and highly customized demands, the biggest challenge and objective for cooperation is how the products can create value-added advantages for customers. In the light of this, we have kept expanding the contents of value-added services in recent years. For example, the smart storage solution of Double-Barreled Solution can assist customers in choosing the most suitable SSD and remotely monitor the health of SSD to increase SSD’s life. In line with the trend in cloud technology such as 5G and big data, we have also invested in R&D and worked with our partners, including Advantech and Allxon, to provide industrial cloud services for customers and create differentiation of market products. We will continue development and operations in the eight application areas: national defense, network communication, transportation, automated factories, medical care, gaming, IoT and in-vehicle applications.

(B) Promoting gaming brands and satisfying consumer demands

In gaming, we aim at different targets with a dual-brand strategy. The ZADAK brand extends its product line based on the design of proprietary distro plates to build the image of a high-end gaming brand. It targets Southeast Asia, Japan, South Korea and China where the economy is fast developing, and gradually increases the demands in the European and US markets. Apacer’s gaming series include PANTHER and NOX, which are products featuring optical control, thermochromism and overclocking. For consumers, we have the PCIe Gen 4x4 SSD that combines the AMD X570 platform to satisfy customers with extremely high demand for speed. As the use of portable hard drives has become widespread and information security has received great attention, we have released military-grade portable hard drives to ensure security of information storage for consumers so that they can enjoy a comfortable and convenient mobile lifestyle.

(C) Planning for smart environmental control and developing smart long-term care

We have developed IoT technologies that integrate software and hardware systems. We have applied the smart IoT integration technologies in fields like factories, animal husbandry and agriculture with mainly customized demands. We help design smart environmental control field solutions most suitable for customers and shorten the time of smart IoT development for business owners. Through enhancement of the capabilities in field control and response, we seek to reduce the operating cost and provide quality value-added services. Under the wave of population aging, future demand for smart long-term care is going to be very high. We have introduced integration services for environmental control systems that use communication software with monitoring equipment, as well as the function of "event shot". Through optimization of the long-term care monitoring environment, we hope to provide solutions to the pain points of businesses in cost and equipment integration for upgrade of smart long-term care.

B. Long-term business development plan

Due to the trend in the technological development of 5G, IoT and big data, the use of smart end devices has become more widespread, and cloud terminals will grow as a result of such a trend. We rely on the solid advantages of our R&D core technologies accumulated through our core business of storage to develop potential fields of application, including storage, reception, analysis, control and sharing of information. We draw up plans for future development and keep working toward our business vision of "becoming the top manufacturer in the integration of IT-enabled information services with digital storage as the core technology".

(A) Building core brand values and culture

In 2018, we extended the core brand value of "reliability and innovation" into the spirit of "good partnership" in "keeping our word, insisting on the best and advancing with our partners" to encourage our employees to keep self-improvement and enhance the quality of products and services, with the aim to achieve mutual benefits and win-win outcomes with partners and customers, and move toward the global leading brand in digital storage.

(B) Strengthening capabilities in virtual, physical, software, hardware and firmware integration

With regard to the demand for virtual, physical, software, hardware and firmware integration, we have actively hired talents in areas related to digital storage and IoT integration, strengthened our internal R&D capabilities and encouraged proprietary development and commercialization to enhance our soft power in business R&D.

(C) Planning for a comprehensive marketing strategy

By planning a comprehensive global brand strategy to expand our horizon, we continue to establish and cultivate the global channel system to communicate consistent brand information and build brand image. We also actively expose our brand image and accumulate brand values by participating in overseas exhibitions held by the government.

(D) Establish talent supply chain systems

With position and competency as the core concerns, we provide training in line with our organizational strategies and objectives, and we use various assessment and testing tools to assist in talent positioning and building our talent database for the purpose of reserving high-potential talents for our medium- to long-term objectives.

The policies described above are designed to achieve stable revenue growth and profits.

2. Market and production and sales status

(1) Market analysis

A. Sales region for major products

Unit: TWD 1,000

| Region \ Year | | 2018 | | 2019 | |
|---|---|---|---|---|---|
| | | **Sales amount** | **%** | **Sales amount** | **%** |
| Domestic sales | | 1,622,775 | 17.19% | 1,447,009 | 19.33% |
| International sales | America | 2,796,273 | 29.62% | 1,244,114 | 16.62% |
| | Europe | 1,283,171 | 13.59% | 1,450,560 | 19.38% |
| | Asia | 3,582,819 | 37.95% | 3,243,616 | 43.33% |
| | Other | 156,580 | 1.65% | 100,522 | 1.34% |
| | Subtotal | 7,818,843 | 82.81% | 6,038,812 | 80.67% |
| Total | | 9,441,618 | 100.00% | 7,485,821 | 100.00% |

B. Market share

The company engages in the production and sales of memory modules and flash memory products. There are many companies engaging in these products. Due to the fact that the production scales of these companies are different, there are no professional and comprehensive industry ranking statistics. Apart from us, domestic companies engaging in the production and sales of DRAM products with a certain scale include ADATA, Transcend, Panram, Unifosa, Silicon Power, and Innodisk. The revenues and market shares of our company and aforementioned companies are listed in the following table. The ratio of operating revenues of the company to the operating revenues of aforementioned companies in 2019 is 12.40%.

Unit: TWD 1,000

| Name of Company | Net Operating Revenues | Market Share |
|---|---|---|
| Apacer | 7,485,821 | 12.40% |
| ADATA | 25,596,853 | 42.42% |
| Transcend | 13,496,186 | 22.36% |
| Panram | 1,561,243 | 2.59% |
| Unifosa | 999,137 | 1.66% |
| Silicon Power | 3,844,725 | 6.37% |
| Innodisk | 7,361,665 | 12.20% |
| Total | 60,345,630 | 100.00% |

Source: 2019 consolidated or individual financial reports of all companies that have been certified by CPAs

C. Market supply and demand status and growth in the future

(A) Market supply and demand status and growth of DRAM in the future

a. Supply and demand status:

Recently, the biggest factor affecting the DRAM market conditions is COVID-19, which has disrupted the industrial chain. Although the pandemic continues to spread, the demand for server deployment led by US and Chinese data center operators has remained solid and has not slowed down the demand growth since the end of 2019. The effect of the COVID-19 pandemic has also spurred one wave after another of demands for stay-at-home economy and online operations. To prevent cross infection among people, schools, businesses and many public and private organizations have taken measures to allow people to attend classes and work from other places. In response to the development of the pandemic, isolation seems to be the best way to prevent the pandemic from spreading further, and it has also caused a boom in the business opportunities for stay-at-home economy. Whether it’s e-commerce shopping, online games, distance working or distance teaching, they all need cloud services, and demands for the hardware equipment, servers, memories and network switches used in combination are expected.

The smartphone market in China has apparently been impacted by the COVID-19 pandemic. The shipment in February saw a sharp drop of over 50%, and both Apple and Huawei have not been spared. According to analysts, the data of the Q1 shipment is not worth any expectation, but in the long term the 5G market demand still looks relatively optimistic.

There is no doubt that the overall consumer market confidence in Q1 has been affected by the pandemic. Nevertheless, 5G applications will begin to expand in the second half of the year. As the level of panic becomes lower, market growth will still be strong in 2020. Having experienced the market price plunge in 2019, the upstream memory manufacturers have chosen to recuperate and build their strength with process R&D instead. The suppliers have cautiously released their production capacity in an attempt to recover profitability.

The COVID-19 pandemic is spreading fast. In recent days, South Korea has seen a large increase in its confirmed cases and therefore raised the pandemic alert to the highest level. Since the two major Korean memory manufacturers account for over 73% of the global DRAM market share, the upstream memory production capacity has become more unpredictable. The general view of the industry believes that due to high level of automation of the memory production lines, supplies from the Korean manufacturers will not be affected.

b. Growth potential of DRAM in the future

In 2020, the key force driving the DRAM output value will still be servers, in particular data centers. Driven by Google, Amazon, Microsoft, Facebook and China’s three Internet giants (BAT, including Baidu, Tencent and Alibaba), the unit growth rate of server DRAMs may be expected to reach 5.3% in 2020 (see Fig. 14). 5G will become the key technology that drives the demand in the memory market, including the growing server demand before the completion of 5G and its infrastructure and more new demands resulting from the implementation of 5G, such as edge computing and IoT/IoV. According to the shipment volume, 5G, data centers and edge computing will become the main driving force of the increasing demand for server DRAM.

The YoY growth rate of the smartphone market in 2019 was -3.9%. Nevertheless, for the purpose of differentiation, smartphone manufacturers have added multi-camera and AI functions that need to rely on upgrade of the DRAM specifications. 4G phones are mostly equipped with 4~6GB memories. After transition to 5G phones, they will push the specifications to 8~12GB. In 2020, the formal commercial transition to 5G phones is expected to stimulate the momentum of growth in mobile DRAM.

With respect to shipments, only servers are expected to see positive growth in 2020, while negative growth is expected for smartphones, PCs and notebooks. Regarding memory capacity, in 2020 smartphones and servers are expected to see double-digit growth at the rates of 17.6% and 30.7% respectively. The two types of application account for about 73.8% of the demand for memories. This is why DRAM manufacturers have increased the percentages of mobile and server DRAM in production year by year.

| Item | 2019 | | 2020 | |
|---|---|---|---|---|
| | Shipment (unit: M) | YoY | Shipment (unit: M) | YoY |
| PC | 256.1 | -2.7% | 251.9 | -1.6% |
| Notebook (by ODM) | 164.9 | 0.6% | 163.1 | -1.1% |
| Server | 12.5 | 0.2% | 13.1 | 5.3% |
| Smartphone (Production Volume) | 1,400.2 | -3.9% | 1,381.4 | -1.3% |

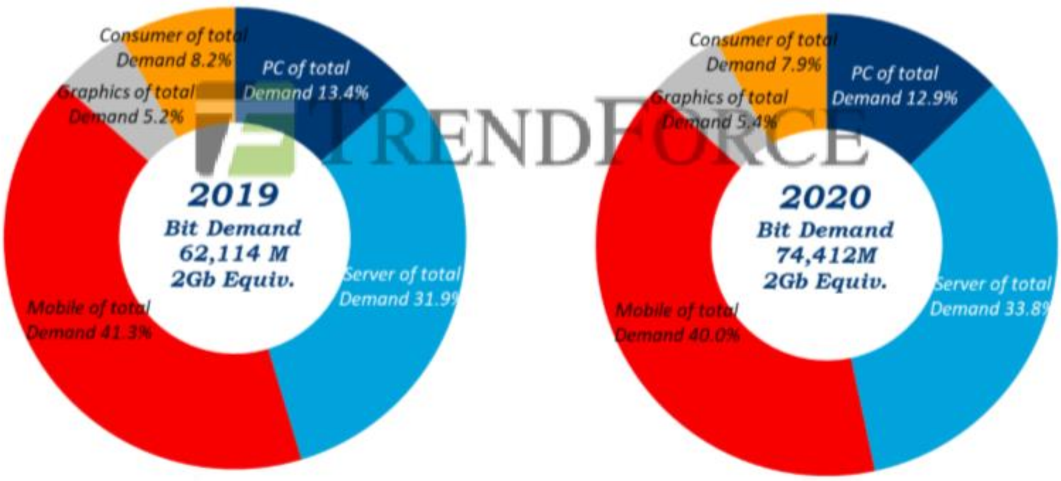


Source: DRAMeXchange, January 2020

**(Fig. 14 Estimated shipping volume growth of DRAM end product analysis based on the application)**

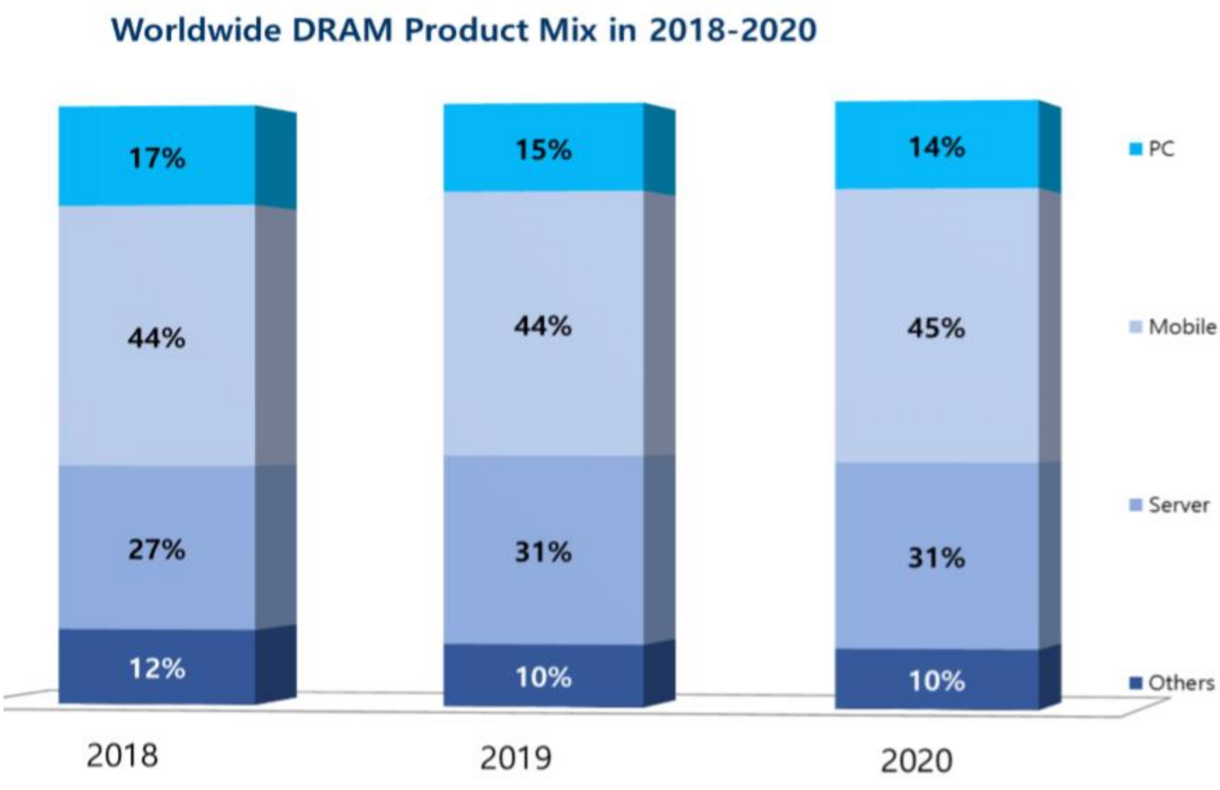
**Demand YoY Bit Growth of Different Applications**

| Avg. Content Per Box | 2019 | | 2020 | |
|---|---|---|---|---|
| | Unit: GB | YoY | Unit: GB | YoY |
| Smartphone | 3.82 | 23.3% | 4.49 | 17.6% |
| Server | 303.17 | 26.6% | 396.25 | 30.7% |




Source: DRAMeXchange, January 2020

**(Fig. 15 Estimated DRAM carrying capacity growth analysis based on the application)**




Source: inSpectrum, February 2020

**(Fig, 16 WW DRAM output comparison figure between 2018 and 2020)**

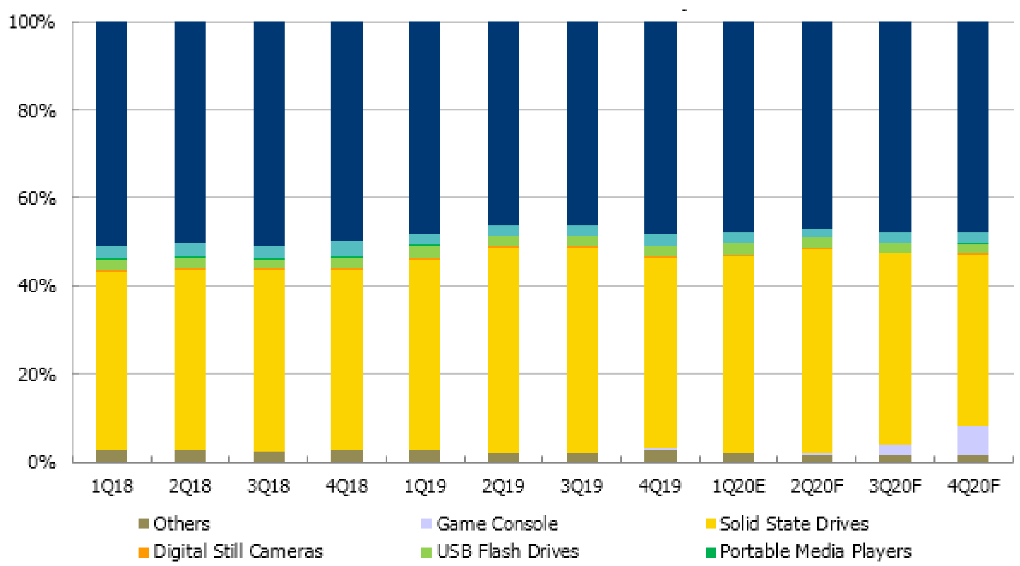
(A) Market supply and demand status and growth of NAND flash in the future

a. Supply and demand status:

In 2020, the growth rates of NAND Flash production and demand are predicted to be 32.6% and 33.2% respectively. At the demand end, the shipments of enterprise SSDs and client SSDs have remained high, so the overall market is likely to experience undersupply during the season of high demand. At the same time, manufacturers have not significantly increased capital investment, and unit capacity has become larger due to process transition. The result will be a more advantageous cost and expansion of the average memory capacity of terminal devices and SSD capacity, and demand is expected to grow significantly. The consumption ratio of smart phones, tablets and SSD will surpass 80%. However, the COVID-19 pandemic may disrupt growth this year and create more uncertainty for supply and demand. The impact on servers and data centers is expected to be the lowest. As for supply, the impact is considered to be limited due to highly automated manufacturing of semiconductors and adequate stock of materials.

b. The growth potential for NAND FLASH application in the future

The growth of SSD in 2020 remains a highly expected application (see Fig. 17). It is estimated that the SSD carrying ratio for notebook PC in 2020 will surpass 80%, which is mainly caused by the fact that the increase of yield of 3D production process lower the costs of SSD that is beneficial for the increase of SSD penetration rates and carrying capacity. In addition, in response to the massive storage demand from data centers, NAND flash firms also strive to develop new technology and new production processes for NAND flash memory in order to increase the storage capacity per unit. As we approach an era where the density of a single chip may reach tera-byte (TB) level, all manufacturers will strive for the development of 3D NAND flash memory.




Source: TrendForce Corp., February 2020

**(Fig. 17 NAND flash demand analysis, based on application, between 2018 and 2020)**

As the volume of functional call phone continues to decrease and the market for smart phone becomes gradually saturated, the global smart phone output volume in 2020 is expected to be around 1.35 billion. The shipment no longer have growth trend. Demands like live webcasting, video streaming, photographing and mobile games with the reduction of the average sales price will increase the average carrying capacity of NAND flash in order to provide more convenient functions, such as more fluent video processing, to mobile phone users. 5G will be a major area of focus in 2020. According to a report of IDC in the US, shipment of 5G phones in 2020 is expected to reach 0.19 billion, accounting for 14% of the global annual shipment of smartphones. China is going to lead the 5G market, while other countries including the US, South Korea, UK and Canada are actively deploying 5G equipment. The key factor for 5G growth in 2020 still depends on prices, which of course include the contents of the services provided by hardware and operators. Reduction in the price of 5G phones will also contribute to growth in the 5G market. The formal commercial transition to 5G in several countries is expected to bring a wave of mobile phone replacements due to increased transmission performance.

On the other hand, as wearable devices become common around the world, applications for wearable devices are expected to occupy a quite large market share. According to the analysis by MIC, the output value of IoT will grow rapidly. IoT devices worldwide will reach 25 billion by 2020 with the value of USD 7.1 trillion. The business opportunities of this market are astonishing. The fact that the IoT becomes common and the consumer market adopts more and more smart watches and activity trackers bring a huge opportunity for IoT manufacturers. In the application area, related equipment, such as consumer electronics, energy management and construction industry, accounts for higher output ratios. Apart from aiming at developing products that meet customer demands, all corporations also draw plans with greater vision for the IoT application business opportunities whose output value will reach US$7.1 trillion in four or five years. This imperceptibly increases the development of NAND flash application.

Against the backdrop of trends like 4K video, VR, AR, and booming IoT intelligent monitoring applications, the demand for NAND flash in consumer electronics, corporation, industry, and automobile markets is increasing dramatically, which brings an excellent growth opportunities for suppliers of control chips and SSD modules.

D. Competition niches

(A) Rich experience in core technologies

With core storage technologies as the basis, we have continued to develop the relevant products and technologies. Aside from upgrades in specifications and capacity, expansion of product lines to gaming, cloud platforms, IIoT and smart IoT is what we have been actively doing in recent years. Through this, we have developed demands for integration of software and firmware other than hardware. We have also continued planning for products and technologies of optical inspection, which currently are used in the production lines of major panel manufacturers. The combination of multiple products helps enhance market competitiveness, increase growth in the markets of new areas and maintain stable profits.

(B) Dense global marketing networks

We have been marketing our self-owned brand to the world and have had a global channel network for more than 20 years. We have subsidiaries in the US, the Netherlands, China, Japan and India to develop the local markets, provide timely services for localized demands and reduce the time and maintenance cost for distance communication. We develop customers and promote our brand image at professional exhibitions such as COMPUTEX, Embedded World, G2E and Smart City Summit & Expo, or events like forums and seminars. To seek opportunities for exposure of our brands and gather momentum for business promotion, we have actively participated in international awards including the Taiwan Excellence Awards and the evaluation for the Best Global Brands of Taiwan.

(C) Diverse demands for customization

One feature of the memory module industry is high customization, in that specifications or production lines can be adjusted on a flexible basis depending on customers' demands. It is a test for the distribution capability of companies. Besides listening and communication, clarifying problems, defining specifications and developing and testing products, technical support is provided to enable customers to enjoy comprehensive procurement and sales services.

(D) Stable sources of supply

Memory prices are closely related to market changes, since any change will cause a price fluctuation. Therefore, the key factor affecting long-term operations lies in how to ensure stable supply of raw materials and provide customers with competitively advantageous products. We actively maintain our excellent relationships with domestic and foreign suppliers to ensure stable raw material suppliers for DRAM and flash chips and maintain the basis of profits for our customers and the Company.

(E) Quality control in conformity with international standards

We have strict requirements on quality. Apart from passing the international quality management system of ISO 9001, ISO 14001, OHSAS 18001 and IECQ QC 080000 quality certifications, we enhance our process management and replace equipment to meet the requirements of RoHS and other EU directives related to the environment. Our ultimate goal is zero-defect quality.

(F) Complete customer service

We have a comprehensive customer service system in place to ensure prompt solution of customers' problems. To correspond to the complexity of present multi-platform and applications and the frequent occurrence of compatibility problems, besides the current RMA department, we specially design the service platform to provide highly efficient and in-time technical service for the customer without regional restrictions.

(G) Commitment to better value-added services

In addition to hardware products, we have invested R&D costs in providing value-added services to customers. For example, with respect to industrial control customers, we have released Double-barreled Solution for smart storage solutions, CoreGlacier™ for cooling and Instant Keychange™ for fast destruction of original keys and creation of new keys to help customers solve their problems in product usage. As for the consumer, we have the FileBridge OTG file management app to accelerate the sharing of file data. With the integration of software and hardware and the spirit of "insisting on the better", we provide comprehensive value-added services.

E. Favorable and unfavorable factors of development and countermeasures

(A) Favorable factors

a. Product quality recognized by customers

Since the establishment of Apacer more than 20 years ago, we have remained committed to the operating principle of “quality first”, so we continue the investment in obtaining international standard certifications. We have passed and continued to renew the ISO 9001 and ISO 14001 quality certifications, and we have introduced new automatic production equipment and high-performance inspection equipment. In the production process, we also strictly implement gateway inspections to effectively control the production quality and yield. Therefore, our products have earned a high reputation in the industry and ensure the competitiveness in the international markets.

b. Continually innovative R&D capabilities

R&D capability is a key indicator for business operations. We have followed the operational strategy to actively recruit talents, establish product development plans and apply for patents to move toward proprietary commercialization. We allocate an amount of money for R&D expenses, and we design products with specifications based on technology development blueprints that satisfy the terminal demands of customers in hardware, firmware, software, or testing in order to create a win-win market.

c. Business opportunities in product specification upgrades

With the market development of the NAND Flash 3D process becoming more stable and an overall price reduction in the second half of 2019, SSD application will no longer be subject to cost limitations and can be widely applied to the consumer market to help promote business opportunities for upgrades. The average unit cost of SSDs went down in 2019. Nevertheless, with the stable quality of MLC shipment, higher level of customer acceptance is expected, which is beneficial to long-term development.

d. Seizing trends to plan the future

In recent years, the technology trend has moved in the direction of 5G, AI, cloud storage, IoT and big data, and the market demands and business opportunities arising therefrom. We have already used digital storage as the basis for expansion in the reception, monitoring, sharing and analysis of information, with the aim to seek potential business opportunities through the integration of IT-enabled information services.

e. Globalized marketing strategy and channels

Ever since its foundation in 1997, our Company has been marketing its self-owned brand “Apacer” products around the world. Rooted in our Taiwanese home market, we have established overseas subsidiaries at important posts. This not only helps the Company understand the demands of those local markets and get in line with the international trend, but also helps provide services to customers in those areas to reduce the cost of customer service over long distances.

f. Partnership of mutual progress and benefits

The prices of the main raw materials for memory modules are susceptible to fluctuations caused by the external environment. Hence, our major suppliers for DRAM chips are from major DRAM suppliers around the world. We have diversified our procurement sources for flash memory chips and strategically adjusted the inventory level in order to prevent losses caused by market fluctuations. Our company and its supply chain have collaborated for a long time and have developed good partnerships, which means that we enjoy stable supply sources and prices.

Owing to our strategic alliance with Phison Electronics through private placement in 2015, the competitiveness advantages and resources from both parties have become integrated. While making our product lines more complete, we also expanded our operation scale and offers our customers more diverse customized solutions. Currently, we focus on further development in customized industrial control SSD storage devices, continue to expand our differentiation advantages, and drive the integration of our companies, jointly expand the cross-border niche markets, increase competitiveness of both parties in the global market, and create synergy along our overall industrial chain.

(B) Unfavorable factors and countermeasures

a. Big price fluctuations of main raw materials affect the stability of profits

Regarding the product cost, the key raw materials DRAM and flash chips that account for high product cost ratio and has rapid price fluctuations, are a important factor affecting profits. Therefore, we plan the following countermeasures:

(a) We will obtain timely market information through multiple channels, enhance our sensitivity and assessment of pricing trends in the marketplace, and improve our capabilities to respond to the risks of price decreases and fluctuations.

(b) By analyzing the data from the global marketing posts and enhancing our inventory management and estimated sales, we increase the production and shipping speed in order to lower our price fluctuation risks.

b. The short life cycle of products causing the intense price competition

Due to the shortening product life cycles , manufacturers accelerate their development and production cycles in response to market demand, which also causes intense price competition. In this context, it is not easy to control inventories manage product development to respond timely enough to changes in the market which has led to excess inventory or changes in the raw material prices. Therefore, we plan the following countermeasures:

We intensively monitor market trends and demand via our overseas marketing channels and use them for feedback to localized demand as reference for the R&D team for design. We also provide products and services with high values added, gross profit and high quality. Through system introduction, we enhance the efficiency of plant production management, quality control and inventory level management and reduce manufacturing costs to make our brands and products competitive internationally.

c. Exchange rate fluctuation risks

Owing to the high export dependence of our Company, exchange rate fluctuations have a certain impact on our profits. Therefore, we plan the following countermeasures:

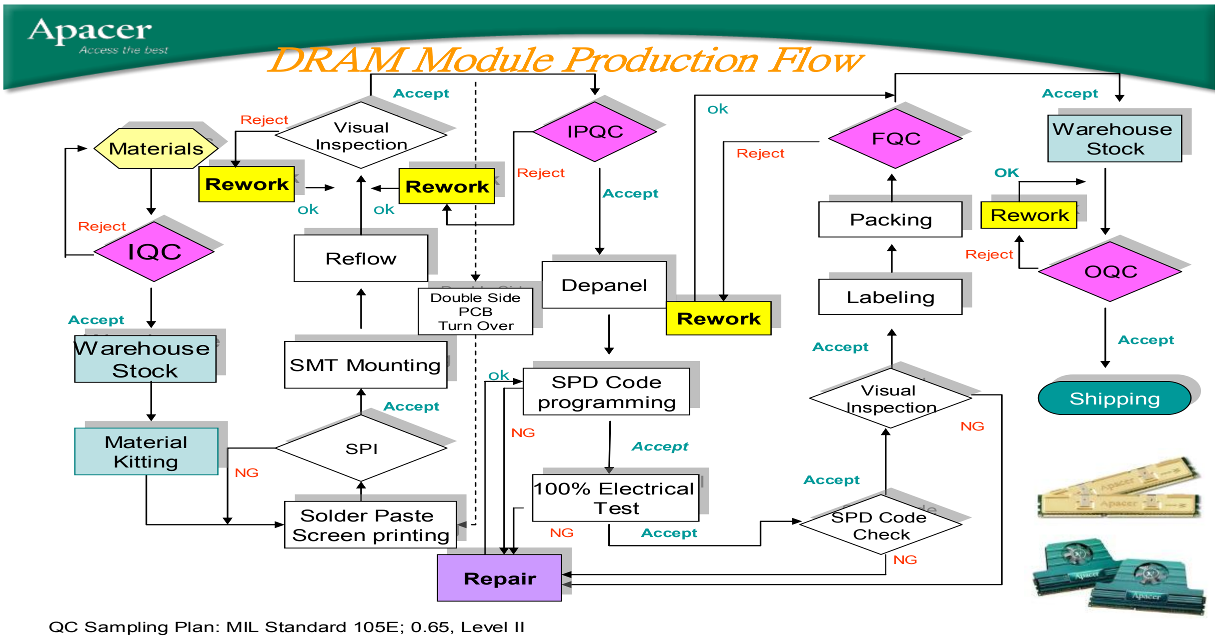
Our company keeps close and stable relationship with banks to effectively grasp the status of exchange rate fluctuations in time. We also assign personnel to collect exchange rate fluctuation information and prepare research report in order to control the timeliness of exchange rate fluctuation and adjust our foreign currency asset and liability positions. We also use financial instruments to effectively respond to impacts caused by exchange rate fluctuations.

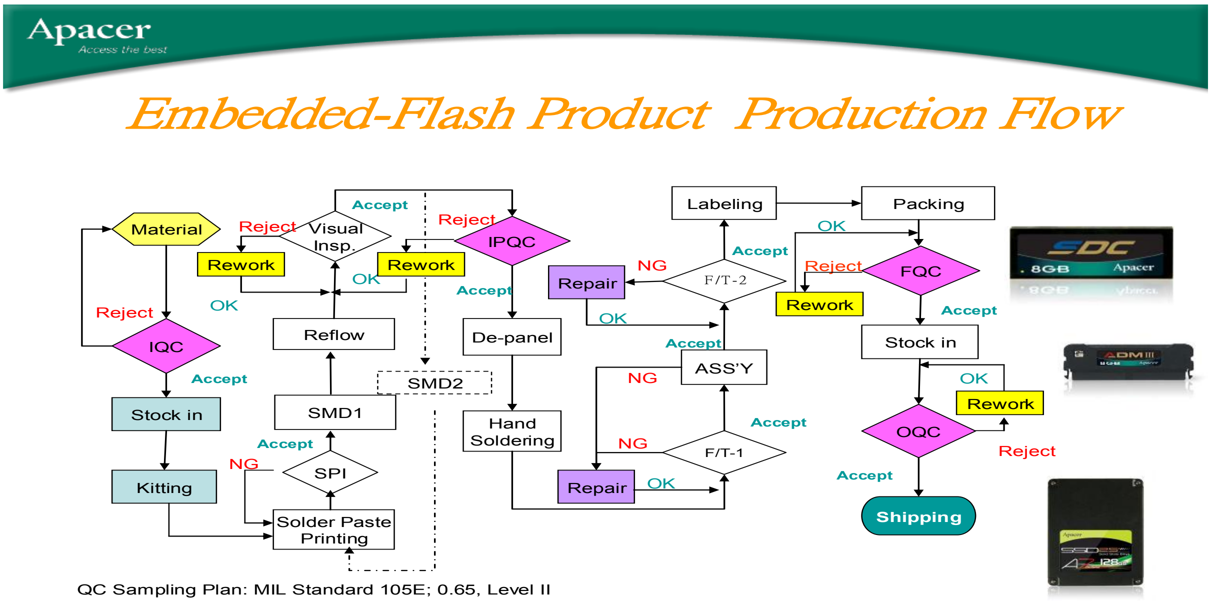
(2) Important uses and production processes of our main products

A. Important uses of the main products

| Main products | Main uses |
|---|---|
| Memory module | Memory modules are various types of DRAMs printed on a circuit board via a circuit design, which are embedded in computer main boards and which are compatible with the computer functions, to expand the data processing capacity of the computer and accelerate data processing. They are mainly used in personal computer systems and consumer electronics, for example: personal computers, notebook computers, laser printers, servers, and workstations. |
| Flash memory | (1) Applied as information storage in portable digital products. flash memory is a non-volatile semiconductor technology, which can be used for permanent and modifiable data storage. Thanks to its small size, large capacity, easy portability, and high reliability, it is used in SSDs, mobile phones and tablets.<br>(2) Applied in embedded systems to replace traditional hard disks in industrial applications such as Thin Clients, medical devices, POS machines, surveillance systems, or military equipment. Consumer applications such as set-top boxes, game consoles, satellite navigation systems, etc. |

B. Production processes



(3) Main raw material supply

| Product name | Main raw material | Major suppliers | Supply situation |
|---|---|---|---|
| Memory modules, flash memory and related products | DRAM, Flash | Samsung, Phison Electronics Corp.,World Peace International Group, among others | Normal |

(4) List of major suppliers and customers

A. List of suppliers accounting for more than 10% of total procurement in either of the last two years:

Unit: TWD 1,000

| 2018 | | | | 2019 | | | | 2020, as of March 31 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Title | Amount | Annual net procurement ratio (%) | Relationship with the issuer | Title | Amount | Annual net procurement ratio (%) | Relationship with the issuer | Title | Amount | Annual net procurement ratio (%) | Relationship with the issuer |
| A | 1,973,390 | 25.97 | None | A | 1,355,143 | 23.63 | None | A | 411,065 | 21.08 | None |
| C | 1,203,171 | 15.84 | None | B | 1,085,531 | 18.71 | None | B | 248,754 | 12.76 | None |
| B | 1,131,254 | 14.89 | None | C | 875,960 | 15.28 | None | C | 223,899 | 11.48 | None |
| Other | 3,290,159 | 43.30 | | Other | 2,417,913 | 42.38 | | Other | 1,066,116 | 54.68 | |
| **Net procurement amount** | **7,597,974** | **100.00** | | **Net procurement amount** | **5,733,679** | **100.00** | | **Net procurement amount** | **1,949,834** | **100.00** | |

B. List of customers accounting for more than 10% of total procurement in either of the last two years: None.

(5) Production value over the last two years

Units: 1,000 pieces; TWD 1,000

| Year / Production value / Major products | 2018 | | | 2019 | | |
|---|---|---|---|---|---|---|
| | Production capacity | Production volume | Production value | Production capacity | Production volume | Production value |
| Memory module | (Note 1) | 3,546 | 3,145,312 | (Note 3) | 4,148 | 2,380,739 |
| Flash memory | (Note 2) | 10,637 | 2,595,328 | (Note 4) | 8,999 | 2,660,394 |
| **Total** | **4,390** | **14,183** | **5,740,640** | **4,800** | **13,147** | **5,041,133** |

Note 1: Nearly 42% of this production volume is outsourced.
Note 2: Nearly 73% of this production volume is outsourced.
Note 3: Nearly 47% of this production volume is outsourced.
Note 4: Nearly 69% of this production volume is outsourced.

(6) Sales value over the last two years

Units: 1,000 pieces; TWD 1,000

| Year / Sales value / Major products | 2018 | | | | 2019 | | | |
|---|---|---|---|---|---|---|---|---|
| | **Domestic sales** | | **International sales** | | **Domestic sales** | | **International sales** | |
| | **Amount** | **Value** | **Amount** | **Value** | **Amount** | **Value** | **Amount** | **Value** |
| Flash memory | 7,941 | 624,628 | 10,582 | 4,168,751 | 3,257 | 631,955 | 8,779 | 3,959,617 |
| Memory module | 5,787 | 995,677 | 2,740 | 3,649,003 | 1,519 | 811,517 | 2,590 | 2,076,086 |
| Other | 5 | 2,470 | 1 | 1,089 | 4 | 3,537 | 1 | 3,109 |
| **Total** | **13,733** | **1,622,775** | **13,323** | **7,818,843** | **4,780** | **1,447,009** | **11,370** | **6,038,812** |

3. Personnel information over the last two years

(1) Talent cultivation and career development

In response to the rapidly changing environment in and around our industry, our company provides education and training to its staff to develop the competencies needed to achieve our organizational goals and business strategies, to enhance their professional capabilities, and to boost their knowledge and energy, in order to respond to the challenges in our work. We deploy a range of hard skills and soft skills training for various positions and roles of our staff members in alignment with the organization's goals and strategies. Besides inviting external instructors and outstanding internal managers to teach, discuss, hold experience camps and share their experiences, we also regularly upgrade and assess the skill sets of our technicians. In addition, our staff is also encouraged to participate in public training courses organized by external professional organizations as another enriching avenue for continuous learning. In 2019, the total number of training hours for direct and indirect personnel was 12,559 hours.

(2) Number of employees, average years with our company, average age, and degree distribution ratio

| Year | | 2018 | 2019 | 2020, as of March 31 |
|---|---|---|---|---|
| Number of employees | Direct personnel | 186 | 178 | 184 |
| | Indirect personnel | 324 | 326 | 334 |
| | Total | 510 | 504 | 518 |
| Average age | | 37.6 | 38.1 | 38.2 |
| Average years with our company | | 6.1 | 6.5 | 6.6 |
| Distribution of degrees | Doctoral degree | 1 | 1 | 1 |
| | Master's degree | 87 | 97 | 100 |
| | College | 314 | 302 | 313 |
| | Senior high school | 100 | 96 | 95 |
| | Below senior high school | 8 | 8 | 9 |

Note: The numbers indicated in the table above are those of Taiwan.

(3) Training structure and efficacy

The Department of Human Resources and Administrative Services arranges training for our staff aligned with their needs. Before any training, the department confirms the performance goals of the heads and the competence gap of the employees of each unit. After the training, a four-level evaluation is executed to continuously revised and adjusted the training. In line with the organization's goals and business strategy, the main framework for the annual training are as follows:

A. Hold industry trends seminars: Help the staff to understand the overall situation and business opportunities in the industry and the market.

B. Customized training courses: Give different training courses according to the needs of the training participants.

C. Training internal lecturers: Train and strengthen the skill sets of our internal lecturers, whose experience is close to the actual situation of their colleagues.

D. Continuing the talent supply chain: Select key staff members with potential to expand our talent pool and build successors.

To enable employees to improve their professional capabilities and in line with their ability to accomplish the organization’s strategic goals, the training courses will be divided based on the participants:

A. New staff training: This offers new employees knowledge about the Company's business direction, development vision, corporate culture and articles of incorporation and then they will further identify with the core values and management system of the Company.

B. General staff training: This focuses on general knowledge for every employee and is divided into hard and soft general training. Hard training includes courses required by regulations or certifications while soft training includes courses on physical and mental development or health management.

C. Supervisor training: The focus of middle-level supervisors is on the core value of continuous innovation, and the ability to carry out change management in response to the environment, predict and control risks of the industry and its context in the future, and understand financial figures and be able to apply them. Base-level supervisors must strengthen their self-awareness in their roles, improve the planning of work flows, carry out good execution, and have a basic understanding of financial figures.

D. Potential talent training: To reduce gaps in our workforce and to identify high-potentials, we ask senior members of our management team and external instructors to give lectures. We also give them projects to manage and help them improve their work flows to enable them to meet the potential talent requirements of the Company.

The 2019 education and training outcomes are as follows:

| Course type | Number of participants | Number of hours | Total cost (TWD) |
|---|---|---|---|
| New staff training | 322 | 813 | 1,662,273 |
| General training | 3,161 | 9,433 | |
| Supervisor training | 13 | 26 | |
| Talent Training | 221 | 895 | |
| External training | 121 | 901 | |
| Training on RBA and ethical management | 491 | 491 | |
| Total | 4,329 | 12,559 | |

(4) Diversified learning and development

Every employee can enhance their professional capabilities through various channels, such as, in the Company: on-the-job training, job coaching, job transfer, seminars, online learning, reading clubs, etc. Outside the Company, they can participate in study activities of professional organizations, short-term training courses of well-known domestic and foreign universities and training institutes, etc.

(5) Corporate Social Responsibility Report

We continuously strive, through its mission, philosophy, beliefs, employees' value judgments and codes of conduct, to integrate internal and external resources of the Company and practices energy-saving, environmental-friendly and healthy living. We pursue sustainability and profitability, while also fulfilling our social responsibility.

(6) Employee Code of Conduct and Code of Ethics

In its system of rules, we clearly set forth the rights and obligations of employer and employees in order to build a management system, improve organizational functions, and improve work efficiency. We have norms to regulate employees' professional conduct in the work place and deepen their ethics through internal announcements and training.

A. Implementation of hierarchical management

We have adopted a "Decision making authority table", "Principles for managerial titles and grades at all levels of the organization" and "Grade/title system list", which set forth the rules and specifications of jobs across the Company in order to clarify the various levels, ensure smooth operations, and offer employees a career development blueprint.

B. Compliance with government laws and regulations

We strictly abide by all government laws and decrees as well as regulations formulated by the competent authorities. In addition to safeguarding employees' rights and interests, these also regulate employees' behavior and professional ethics.

C. Employees' code of conduct

A. Avoidance of Conflict of Interest: According to the Company's "Integrity Code of Conduct" and "Integrity Management Procedures and Behavior Guidelines", employees are strictly required to avoid actual or potential interference from personal interests with the Company's overall interests. In addition, a report is presented to the Board of Directors regarding the implementation of ethical management.

(A) In October 2019, we organized ethical management training sessions (including labor, health and safety, environmental health, ethical standards, management systems and other RBA-related issues), which were attended by a total of 491 persons.

(B) In accordance with the norms of the "Internal Important Information Handling Operation Procedures", we regularly remind and require our employees to abide by these codes of conduct. The legal, audit, finance, information, and administrative departments also remind their staff from time to time of the key points of these behaviors, including norms relating to intellectual property rights protection and information security.

(C) The "Work Rules" set forth clear norms for employees' conduct and codes, along with sanctions that may include termination of the employment relationship in serious cases such as:

a. Where the employee misrepresents any fact at the time of signing of a labor contract and thus caused the Company to suffer damage or fear thereof.

b. Where a worker commits a violent act against or grossly insults the Company's responsible person, his /her family member, a manager at any level, or a fellow employee.
c. Where the employee has been sentenced to temporary imprisonment, and is not granted a suspended sentence or permitted to commute the sentence to payment of a fine.
d. Where the employee deliberately damages or abuses any machinery, tool, raw materials, product, or other property of the Company, or deliberately discloses any technical or operational confidential information of the Company thereby causing serious damage to the Company.
e. Where the employee is, without good cause, absent from work for three consecutive days, or for a total six days in any month.
f. Where the employee engages in corruption or misappropriation of public funds, or accepts bribes or commissions.
g. Where the employee runs other business outside the Company which affects the Company's interests and business conflicts in a serious way.
h. Where the employee refuses to follow reasonable instructions and neglect their duties, resulting in damage to the Company; this must be specific and serious.
i. Where the employee slanders the Company, instigates an illegal slow-down or illegal strikes, with specific evidence.
j. Where the employee forges the signature of their supervisor or abuses their supervisor's stamp.
k. Where the employee threatens the supervisor or destroys or alters a company file.
l. Where the employee steals or gambles anywhere within the premises of the Company that affects the order of work; with specific evidence after investigation.
m. Where the employee violates a national statute and thus affects the performance of a labor contract, or breaches the labor contract in a serious way.
n. Where the employee brings banned items such as guns, ammunition, or knives into the workplace without good reason.

D. Protecting and using company assets properly

Our employees are responsible for protecting the Company's assets and ensuring that they can be legally and effectively used. If they wish to use the services, equipment, facilities, items, or other resources of the Company for other than business, they must obtain permission beforehand. The use and management of our assets are controlled through a clear system.

E. Responsibility for confidentiality

We attach great importance to protecting confidentiality and intellectual property rights. Our employees are required to sign an "Employment/Confidentiality Agreement" and "Confidentiality Rules" at the time of joining the Company. Their content covers the confidentiality obligations of the Company, the ownership of intellectual property rights during employment and after resignation, and other related regulations. Secrets regarding business or technology must not be disclosed; one must not read documents, letters, emails, design drawings, etc. that are not related to one's job.

F. Gender equality and the prevention of sexual harassment

In accordance with the law, we have included norms on gender equality in its "Work Rules" and has formulated a "Regulation on the Reporting and Punishment of Sexual Harassment in the Workplace", which provide detailed behavioral standards and reporting channels and processes for employees to follow.

4. Environmental protection expenditure

(1) During last year and this year to date, the total amount of losses (including compensation paid) and penalties. We also disclose future countermeasures (including improvement measures) and potential expenditures (including estimated amounts for potential losses, penalties, and compensations paid for future countermeasures; if difficult to estimate, describe the matters that are difficult to estimate): None.

(2) Information on greenhouse gas emissions and reductions

Apacer Technology took greenhouse gas inventories in 2013 and set 2012 as the base year for inspections going forward. In the same year, we were verified by Bureau Veritas Taiwan (B.V.) and obtained a statement of reasonable assurance level. Apacer Technology annually checks its greenhouse gas emissions of the previous year. The boundary of the inventory is the direct and indirect greenhouse gas emissions of all our plant sites in Taiwan.

In 2019, our total greenhouse gas emissions were 2,134.5541 metric tons of CO2-e/year. This was an increase of 70.5971 metric tons of CO2-e/year when compared to 2018. This is because the office area was extend to seventh floor and the Company's indirect greenhouse gas emissions accounted for more than 99% of the total emissions every year. Our average greenhouse gas emissions from 2013 to 2019 were 1,856.552 metric tons CO2-e/year, which was 1.031% higher than the 2012 base year (1,800.715 metric tons CO2-e/year). Our analysis of the reasons for this can be summarized as follows:

A. In 2016, we added a sixth floor to our office area, which led to increased emissions.

B. In 2018, we added a seventh floor to our office area, which led to increased emissions.

C. In recent years, the electricity emission coefficient announced by the Bureau of Energy has increased every year (0. 518CO2-e/degree in 2016 till 0.554CO2-e/degree in 2017). This multiplication resulted in the increased emissions figures.

D. Increases in capacity utilization and turnover have led to increased emissions.

| Year | 2018 | 2019 |
|---|---|---|
| Direct greenhouse gas emissions | 8.752 metric tons CO2-e/year | 9.107 metric tons CO2-e/year |
| Indirect greenhouse gas emissions | 2,055.205 metric tons CO2-e/year | 2,125.4771 metric tons CO2-e/year |
| Total greenhouse gas emissions | 2,063.957 metric tons CO2-e/year | 2,134.5541 metric tons CO2-e/year |

(3) Energy conservation and carbon emission reduction awards

As we support green energy and environmental protection, Apacer Technology is always focused on strengthening energy efficiency within the Company and reducing unnecessary energy consumption. We also stimulate our employees to reduce energy use, carbon emissions, and greenhouse gas emissions. In 2014, Apacer was awarded the Energy Conservation and Carbon Reduction Action Mark by the Environmental Protection Agency. In 2015, we participated in the "Clean Energy Conservation and Carbon Reduction Production Plan" of the New Taipei City Government. Our new technologies, techniques, and resources help control the use of energy and resources, raise energy efficiency and improve our competitiveness on our path toward greater corporate sustainability. In recognition of Apacer's efforts and achievements in energy conservation and carbon reduction, the New Taipei City Government presented us with a Certificate of Appreciation during the announcement of the outcomes of the 2015 Clean Energy Conservation and Carbon Reduction Production Coaching Program.

(4) Green product management

In response to the European Union's RoHS Directive and customer requirements, we have made all its processes lead-free as of 2007, and gradually made them halogen-free as well since 2011 in line with the environmental trend of green products. The RoHS Directive has been fully incorporated into our production processes and material management, which comply with the EU's REACH regulation. We also use these regulations in our audits of component suppliers whom we require to provide us with their environmental protection commitments and RoHS test reports. In July 2007, we passed the IECQ QC080000 management system audit carried out by a third-party certification company. Under this system, we completely control the management of prohibited hazardous substances from product to manufacturing process.

We also promise that products delivered to our customers will never use metals from conflict mining areas, in accordance with the DRC Conflict-Free norms.

Our products comply with international standards, and our response measures have not significantly impacted our financial performance.

In response to the European Union's RoHS Directive, we will implement the extended directive (EU)/2015/863 to add four plasticizer hazardous substances (BBP/DBP/DEHP/DIBP) in July 22, 2019. We have introduced it into the supplier management two years earlier in July 1, 2018, ahead of all industry peers. We also required our suppliers to provide qualified test reports of a third-party laboratory to show compliance with the latest RoHS standards. We provide products and services free from hazardous substance for the customers and the consumers.

(5) Industrial waste

To effectively clean out waste and pretect the environment from waste pollution, we consider reduction of the waste generated as essential. We also properly sort and recycle wastes and send them to external agencies for disposal. Ordinary and hazardous industrial wastes are sent externally to qualified cleaning and disposal agencies to be disposed of. If required, on-site audits will be conducted by the responsible departments to ensure the appropriateness and legality of wastes and fulfill our corporate responsibility for waste management.

| Year | 2018 | 2019 |
|---|---:|---:|
| Industrial waste | 36.1335 tons | 31.473 tons |
| Recyclable waste | 18.7384 tons | 16.4954 tons |
| Total | 54.8719 tons | 47.9684 tons |

(6) Water consumption

We set great store by energy conservation and environmental protection. We have integrated such concepts with our daily operations to lessen environmental impact and, at the same time, make our employees behave in an eco-friendly way. Domestic water constitutes most of our water consumption. In 2019, we added a seventh floor to our office area, leading to more water consumption than in 2018. To prevent waste of water resources, all the faucets of our washbasins have been changed to water-saving ones to reduce the use of domestic water. We have also put up posters promoting water saving. We have designated personnel responsible for inspecting the water equipment, and any failure discovered will be timely fixed for the purpose of saving water and avoiding waste.

| Year | 2018 | 2019 |
|---|---|---|
| Water consumption | 4,588 kiloliters | 5,360 kiloliters |

5. Labor relations

(1) Below is a list of our company’s employee welfare measures and education, training, retirement systems, with descriptions of their implementation status within as well as agreements between management and labor and the status of employees' rights and interests:

A. Staff welfare measures, education, training and implementation

(A) Employee welfare measures
Apacer has introduced the “A+ EAP Employee Assistance Program”, which won the Work-Life Balance Award from the Ministry of Labor.

a. A+ work

(a) Flexible working hours
To provide care for the employees’ families, we have a system of flexible working hours that allows employees not in production lines to freely adjust their working hours based on the conditions of their families.

(b) Three meals a day
For the employees’ eating needs, we offer a meal allowance and have contracted quality vendors to provide nutritious, healthy and diverse meals. In addition, to give employees more choices for their diets, employees eating designated meals are entitled to a 50% subsidy for three meals a day.

(c) Weekly massage
To relieve employees’ stress, we have contracted physically-handicapped, professional masseurs or masseuses to provide massage service twice a week.

b. A+ family

(a) Lactation rooms
For the needs of breastfeeding mothers, we have built lovely and comfortable lactation rooms that won
the Award for Excellent Breastfeeding and Nursing Rooms from the Department of Health, Taipei City Government.

(b) Maternity allowance
To encourage employees to have children, any employee who has worked at Apacer for at least one year and has given birth to any child at Apacer is entitled to
a maternity allowance of TWD 36,000 for each child.

c. A+ health

(a) Annual health examination
To strictly look after the health of employees, we provide annual health examination to our employees for free.
We have built a medical room with professional nurses to follow up on employees who have abnormal health conditions.
We also arrange for such employees to visit in-plant doctors who will provide health consultation services.

(b) Fitness area
To help employees cultivate a good habit of doing exercise from time to time, we have established fitness areas of spinning bikes and aerobic exercises for clubs and employees.

d. Workplace of sports
To help employees make a good habit of doing exercise in the long term, we have created a "Let's exercise" group and held sports competition events to encourage active participation of our employees.

e. Large-scale events
To provide more activities for our employees to relieve their stress, in addition to the events organized by the Employee Welfare Committee for Dragon Boat Festival, Mid-Autumn Festival and company trips, spring parties and Family Day events have also been held.

f. Group insurance
To provide more complete guarantees for its employees in addition to the statutory labor insurance and health insurance for employees, we have taken out group insurances for its employees and their families, including injury insurance, hospital treatment insurance, and cancer health insurance.

(B) Employee education system

In addition to the training courses, we also offer diversified learning management to stimulate peer learning and knowledge sharing. This includes the following items:

a. Our Intranet offers dedicated areas for articles, good books, and experience sharing.
b. An incentive system for promoting reading clubs and other learning activities.
c. Our library provides a variety of books and magazines for employees to read.

(C) Employee training

In order to achieve our vision of "Becoming the Leading Information Service Integrator with Digital Storage" we work to enhance our employees' and company's culture values of "Trust, Innovation" and the human-centric qualities of "Caring, Sharing, and Mutual Assistance". Our education and training develop core competences in our staff to their competitiveness in the workplace. These courses consist of the following four types:

a. Core courses: These courses on our corporate culture and corporate strategy cultivate our advantages as a leading organization and our abilities to maintain core technology.
b. Management courses: These develop management capabilities needed by managers at all levels.
c. Specialist courses: These cultivate the specialized skills necessary for our staff to perform their jobs.
d. General courses: These cultivate common knowledge among our employees such as new staff induction training, labor safety training, responsible business alliance training, etc.

B. Retirement system

For the stability of our employees' life in retirement, and in order to improve their working morale during employment, we have established the “Regulations Governing Employment, Separation and Retirement” and provided a preferential retirement system in accordance with law. Pursuant to the Labor Standards Act, we have established the “Workers’ Pension Reserve Fund Supervision and Management Committee”, and we have allocated pension reserve funds in accordance with the “Regulations for the Allocation and Management of the Workers’ Retirement Reserve Funds” and actuarial reports. The funds are saved in a designated account at the Central Trust of China to protect the rights and interests of employees. Starting from July 2005, in response to the government's new pension system, 6% of the income of the employees who have chosen the new pension system will be transferred to their personal pension accounts as required by law.

The following requirements are applicable to the Company in accordance with the Labor Standards Act and as approved by the Ministry of Labor:

(A) Voluntary retirement

Any employee to whom any of the following circumstances applies may apply for voluntary retirement:

a. The employee has worked at the Company for at least 15 years, and is aged 55 or older.
b. The employee has worked at the Company for at least 25 years.
c. The employee has worked at the Company for at least 10 years, and is aged 60 or older.
d. If the number of years of service of the employee plus his/her age is over 65, he/she may apply for early preferential retirement, subject to approval by the President.

(B) Mandatory retirement

The Company may not force any employee to retire unless any of the following circumstances applies to the employee:

a. The employee is aged 65 or older.
b. The employee is physically or mentally disabled to the extent of being unable to work.

If any employee performs any work of a special nature that is dangerous or requires heavy physical labor, the Company may, in accordance with Article 54, Paragraph 2 of the Labor Standards Act, apply on his/her behalf to the central competent authority for adjustment of the age under Sub-paragraph 1 of the preceding Paragraph. The adjusted age may not be below 55.

(C) Standards for pension payment

a. With regard to any employee to whom the old pension system under the Labor Standards Act applies, or any employee who has chosen the new pension system under the Labor Pension Act and retained his/her seniority under the old system, the Company will make pension payment to the employee in accordance with the following standards:
   (a) Two bases will be given for each year of service of the employee. Where the number of years of service is over 15, one base will be given for each year. The total number of bases may not exceed 45. Any period less than six months will be counted as six months, and any period of or more than six months will be counted as one year.

(b) If any employee has become insane or physically disabled as a result of performing his/her duties, he/she will receive an additional 20% payment of pension under the preceding paragraph. The pension base means the average monthly wage at the time of approval for retirement.

b. For any employee to whom the new pension system under the Labor Pension Act applies, the Company has allocated 6% of his/her wage on a monthly basis to his/her personal pension account.

(D) Pension payment

Pension payable by the Company to any employee under the old system will be paid within 30 days from the date of retirement of the employee. Pension under the new system will be paid in accordance with the requirements of the Bureau of Labor Insurance.

C. Agreements between labor and management

By emphasizing the harmony of management and labor and paying attention to the welfare of employees, the labor relations of the Company are good and there have been no labor disputes.

D. Employee rights

We invest in labor relations from a perspective of co-existence and co-prosperity. Therefore, we set much store with employees' opinions. Employees may communicate through formal and informal channels at any time to give feedback on issues in their lives and at work. Two-way communication enables the Company and its employees to understand and support each other, build consensus, and create success.

(A) Management-labor conferences:

We regularly hold management labor conferences, where representatives from the employer and employees participate in two-way communication on our company's systems and employees' issues regarding company rules, the work environment, and safety and health. This negotiation model helps both parties to strengthen mutual trust and provides valuable input to the management.

(B) Employee Welfare Committee:

The Employee Welfare Committee consists of members selected from among employees who are passionate about public welfare and are good communicators. Therefore, the committee's meetings offer management and labor insights into welfare measures of the Company.

(2) Protection measures for the working environment and employees' personal safety

A. Specific measures for safety and health management

(A) Periodic review of the safety and health management system

The periodic review mechanisms of ISO 14001 and OHSAS 18001 ensure that all work processes are in line with international requirements.

(B) Evaluating risks and countermeasures

We periodically review each unit for unacceptable risks and non-compliance with regulations, after which we formulate safety and health management plans and risk control measures, and submit these outcomes results to the Safety and Health Committee for review.

(C) Movement toward zero accidents

We implement a self-management plan for safety and health as well as a safety and health education and training plan to achieve the target of only one occupational accident every year.

(D) Evaluation of the work environment

According to the “Implementation Rules for the Measurement of Labor Environments”, the committee must regularly have their company’s operating environment assessed by a qualified operating environment evaluation agency to determine whether the measurement result meet the statutory requirements. Any anomaly in the measurement results must be improved to ensure employee health.

(E) Health care and management

In accordance with the “Labor Health Protection Rules”, health inspections for general operations and for hazardous operations are carried out separately. The inspection items include chest X-ray, blood pressure, electrocardiogram, urine, blood, and biochemistry serum assays. Special inspections are conducted for special hazards at work such as free radiation, organic solvents, and the like, and implementations are carried out at different levels. With regard to hypertension, hyperlipidemia, abnormal blood glucose, abnormal body mass, and other metabolic syndromes. Our resident nurses use the “Personnel Risk Assessment Table” to assist people to mind their health status and to grow healthy living habits. In addition, external experts are regularly invited to share new and correct health knowledge through seminars to promote preventive care among employees.

We have a “Workplace Health Promotion Program” to create a relaxed and healthy workplace culture so that employees can build and enjoy a work environment that is happy for the body and mind. It not only reduces leave taken, staff turnover, and medical expenses, but also can bring down the incidence and cost of physical and mental health issues caused by injury and chronic diseases - a win-win result.

B. Implement operational safety control

(A) In line with the requirements of safety and health regulations and the outcomes of our safety and health risk assessments, we have strict operations control and work permits for operations such as work at elevated height, with open fire, free radiation equipment, etc., and staff must follow these.

(B) All machinery and equipment are legally qualified through regular inspections. Operators have professional licenses and regularly follow on-the-job training.

(C) All incidents (with or without injury and including false alarms) are reported and given follow-up to eliminate potential hazards. In addition, equipment with moving parts, potentially dangerous process points, and protective devices are physically inspected and improvement plans formulated and implemented, to prevent injury.

(D) Roaming inspectors in the plant compound inspect activities and environments along their routes, and also assist with support or rescue in the event of traffic accidents, emergencies, or major drills.

(E) To ensure that operators are not exposed to radiation hazards, periodic inspections of equipment are carried out. Also staff are required to wear anti-radiation gear and participate in radiation work health inspections. Based on the readings of radiation meters and medical check-ups. Radiation doses and employees’ health conditions are monitored to prevent equipment anomalies causing radiation damage to our staff.

(3) List the total amount of losses due to labor disputes During last year and this year to date. Also disclose estimated amounts and countermeasures for current and potential future events (if difficult to estimate, describe the matters that are difficult to estimate):
Our company has harmonious labor relationships and has not suffered any losses due to labor disputes. Such losses are not expected to occur in the future.

6. Important contracts

| Nature of contract | Parties | Contract date | Main content | Limits Terms |
|---|---|---|---|---|
| System maintenance contract | Data Systems Consulting Co. | 1/1/2020-12/31/2020 | Information system maintenance | None |
| Cooperation contract | Maxiotek Corporation | 10/25/2019-10/24/2020 | Cooperation in technical R&D and license | None |
| Engineering contract | 3DFamily Smart Inspection Group Co., Ltd. | 10/31/2019-12/30/2019 | Testing system engineering | None |
| Insurance contract | Fubon Property and Casualty Insurance Co., Ltd. | 7/1/2019-7/1/2020 | Commercial fire insurance | None |
| Insurance contract | South China Insurance Co., Ltd. | 1/1/2020-12/31/2020 | Cargo insurance | None |
| Insurance contract | Hotai Insurance Co., Ltd. | 1/1/2020-12/31/2020 | Product liability insurance and public accident liability insurance | None |
| Insurance contract | Fubon Property and Casualty Insurance Co., Ltd. | 1/1/2020-12/31/2020 | Directors and Managers Liability Insurance | None |

# VI. Financial overview

1. Condensed balance sheet and comprehensive income statement over the past five years

   (1) Condensed balance sheet and consolidated income statement information - IFRS

   **A. Condensed balance sheet (consolidated financial statement)**

Unit: TWD 1,000

| Item \ Year | | Financial information of the last five years (Note 1) | | | | | Financial information of 2020, as of March 31 (Note 1) |
|---|---|---|---|---|---|---|---|
| | | 2015 | 2016 | 2017 | 2018 | 2019 | |
| Current assets | | 2,945,616 | 2,856,713 | 3,589,477 | 3,175,676 | 3,158,606 | 3,690,028 |
| Long-term investments | | 18,249 | 17,984 | 19,197 | 45,821 | 41,944 | 30,516 |
| Property, plant and equipment | | 888,960 | 902,951 | 899,387 | 887,458 | 876,060 | 870,564 |
| Right-of-use assets. | | - | - | - | - | 35,110 | 30,718 |
| Intangible assets | | 7,691 | 11,123 | 24,363 | 66,280 | 62,278 | 58,869 |
| Other assets | | 42,329 | 51,758 | 100,381 | 100,284 | 103,146 | 104,315 |
| Total assets | | 3,902,845 | 3,840,529 | 4,632,805 | 4,275,519 | 4,277,194 | 4,785,010 |
| Current liabilities | Before allocation | 1,009,232 | 1,372,374 | 2,010,340 | 1,538,233 | 1,421,922 | 1,790,676 |
| | After allocation | 1,199,309 | 1,614,529 | 2,272,674 | 1,790,478 | (Note 2) | (Note 2) |
| Non-current liabilities | | 17,131 | 39,620 | 54,325 | 41,830 | 48,876 | 42,303 |
| Total liabilities | Before allocation | 1,026,363 | 1,411,994 | 2,064,665 | 1,580,063 | 1,470,798 | 1,832,979 |
| | After allocation | 1,216,440 | 1,654,149 | 2,326,999 | 1,832,308 | (Note 2) | (Note 2) |
| Equity attributed to stockholders of the company | | | | | | | |
| Share capital | | 1,515,987 | 1,008,978 | 1,008,978 | 1,008,978 | 1,008,978 | 1,008,978 |
| Capital reserve | | 489,941 | 359,203 | 358,225 | 359,910 | 359,910 | 359,910 |
| Reserve surplus | Before allocation | 930,854 | 1,086,882 | 1,250,073 | 1,393,935 | 1,515,937 | 1,670,780 |
| | After allocation | 740,777 | 844,727 | 987,739 | 1,141,690 | (Note 2) | (Note 2) |
| Other equities | | (60,300) | (30,971) | (49,321) | (67,540) | (78,579) | (87,785) |
| Treasury shares | | - | - | - | - | - | - |
| Total equity of stockholders of the parent company | Before allocation | 2,876,482 | 2,424,092 | 2,567,955 | 2,695,283 | 2,806,246 | 2,951,883 |
| | After allocation | 2,686,405 | 2,181,937 | 2,305,621 | 2,443,038 | (Note 2) | (Note 2) |
| Non-controlling interests | | - | 4,443 | 185 | 173 | 150 | 148 |
| Total equity | Before allocation | 2,876,482 | 2,428,535 | 2,568,140 | 2,695,456 | 2,806,396 | 2,952,031 |
| | After allocation | 2,686,405 | 2,186,380 | 2,305,806 | 2,443,211 | (Note 2) | (Note 2) |

Note 1: The financial information in the above table has been examined/reviewed by our accountants. The information can be referenced from public resources.

Note 2: The shareholders' meeting has not passed a resolution on the surplus distribution of 2019.

## B. Condensed statement of comprehensive income (Consolidated Financial Statement)

Unit: TWD 1,000

| Item \ Year | Financial information of the last five years (Note 1) | | | | | Financial information of 2020, as of March 31 (Note 1) |
|---|---|---|---|---|---|---|
| | 2015 | 2016 | 2017 | 2018 | 2019 | |
| Operating revenue | 7,379,728 | 6,822,226 | 10,043,476 | 9,441,618 | 7,485,821 | 1,964,380 |
| Gross operating profit | 961,243 | 1,156,300 | 1,298,790 | 1,309,289 | 1,400,243 | 424,862 |
| Operating income | 314,718 | 406,303 | 474,842 | 437,883 | 483,595 | 194,455 |
| Non-operating income and expenses | (34,261) | 18,906 | (1,802) | 623 | (4,695) | 3,399 |
| Net profit before tax | 280,457 | 425,209 | 473,040 | 438,506 | 478,900 | 197,854 |
| Net profit of continuing operations for the period | 228,389 | 349,291 | 404,957 | 358,830 | 376,629 | 154,841 |
| Losses from suspended operations | - | - | - | - | - | - |
| Net profit for the current period | 228,389 | 349,291 | 404,957 | 358,830 | 376,629 | 154,841 |
| Other comprehensive income for the period (net income after taxes) | (16,856) | (10,001) | (18,169) | 16,826 | (12,883) | (9,206) |
| Total consolidated income for the current period | 211,533 | 339,290 | 386,788 | 375,656 | 363,746 | 145,635 |
| Net profit for the period attributed to owners of the parent | 228,389 | 349,467 | 405,418 | 358,839 | 376,642 | 154,843 |
| Net profit for the period attributed to non-controlling interests | - | (176) | (461) | (9) | (13) | (2) |
| Total comprehensive income attributed to owners of the parent | 211,533 | 339,695 | 386,996 | 375,668 | 363,769 | 145,637 |
| Total comprehensive income attributed to non-controlling interests | - | (405) | (208) | (12) | (23) | (2) |
| Earnings per share | 1.53 | 2.74 | 4.02 | 3.56 | 3.73 | 1.53 |

Note 1: The financial information in the above table has been examined/reviewed by our accountants. The information can be referenced from public resources.

(2) Condensed balance sheet and statement of comprehensive income information - IFRS

## A. Condensed balance sheet (individual financial statement)

Unit: TWD 1,000

| Item | Year | Financial information of the last five years (Note 1) | | | | |
|---|---|---|---|---|---|---|
| | | 2015 | 2016 | 2017 | 2018 | 2019 |
| Current assets | | 2,690,997 | 2,543,801 | 3,260,681 | 2,843,922 | 2,821,478 |
| Long-term investments | | 222,736 | 266,142 | 280,722 | 342,034 | 356,840 |
| Real estate, plant and equipment | | 884,982 | 899,431 | 896,601 | 883,660 | 872,214 |
| Right-of-use assets. | | - | - | - | - | 14,021 |
| Intangible assets | | 7,617 | 10,868 | 24,158 | 66,024 | 62,130 |
| Other assets | | 36,751 | 45,783 | 92,825 | 92,823 | 89,473 |
| Total assets | | 3,843,083 | 3,766,025 | 4,554,987 | 4,228,463 | 4,216,147 |
| Current liabilities | Before allocation | 949,470 | 1,302,313 | 1,962,467 | 1,506,707 | 1,369,607 |
| | After allocation | 759,393 | 1,544,468 | 2,224,801 | 1,758,952 | (Note 2) |
| Non-current liabilities | | 17,131 | 39,620 | 24,565 | 26,473 | 40,294 |
| Total liabilities | Before allocation | 966,601 | 1,341,933 | 1,987,032 | 1,533,180 | 1,409,901 |
| | After allocation | 776,524 | 1,584,088 | 2,249,366 | 1,785,425 | (Note 2) |
| Share capital | | 1,515,987 | 1,008,978 | 1,008,978 | 1,008,978 | 1,008,978 |
| Capital reserve | | 489,941 | 359,203 | 358,225 | 359,910 | 359,910 |
| Reserve surplus | Before allocation | 930,854 | 1,086,882 | 1,250,073 | 1,393,935 | 1,515,937 |
| | After allocation | 740,777 | 844,727 | 987,739 | 1,141,690 | (Note 2) |
| Other equities | | (60,300) | (30,971) | (49,321) | (67,540) | (78,579) |
| Treasury shares | | - | - | - | - | - |
| Parent company Total owner equity | Before allocation | 2,876,482 | 2,424,092 | 2,567,955 | 2,695,283 | 2,806,246 |
| | After allocation | 2,686,405 | 2,181,937 | 2,305,621 | 2,443,038 | (Note 2) |
| Non-controlling interests | | - | - | - | - | - |
| Total equity | Before allocation | 2,876,482 | 2,424,092 | 2,567,955 | 2,695,283 | 2,806,246 |
| | After allocation | 2,686,405 | 2,181,937 | 2,305,621 | 2,443,038 | (Note 2) |

Note 1: The financial information in the above table has been examined/reviewed by our accountants. The information can be referenced from public resources.

Note 2: The shareholders' meeting has not passed a resolution on the surplus distribution of 2019.

### B. Condensed statement of comprehensive income (individual financial statement)

Unit: TWD 1,000

| Item \ Year | Financial information of the last five years (Note 1) | | | | |
|---|---|---|---|---|---|
| | 2015 | 2016 | 2017 | 2018 | 2019 |
| Operating revenue | 7,082,614 | 6,567,983 | 9,844,821 | 9,064,195 | 7,151,398 |
| Gross operating profit | 731,096 | 895,449 | 1,028,072 | 1,062,262 | 1,105,823 |
| Operating income | 280,111 | 361,037 | 425,915 | 416,470 | 440,924 |
| Non-operating income and expenses | 1,852 | 48,471 | 31,430 | 22,044 | 25,733 |
| Net profit before tax | 281,963 | 409,508 | 457,345 | 438,514 | 466,657 |
| Net profit of continuing operations for the period | 228,389 | 349,467 | 405,418 | 358,839 | 376,642 |
| Losses from suspended operations | - | - | - | - | - |
| Net profit for the current period | 228,389 | 349,467 | 405,418 | 358,839 | 376,642 |
| Other comprehensive income for the period (net income after taxes) | (16,856) | (9,772) | (18,422) | 16,829 | (12,873) |
| Total consolidated income for the current period | 211,533 | 339,695 | 386,996 | 375,668 | 363,769 |
| Earnings per share | 1.53 | 2.74 | 4.02 | 3.56 | 3.73 |

Note 1: The financial information in the above table has been examined/reviewed by our accountants. The information can be referenced from public resources.

(4) Accountants' names and review opinions over the last five years

Accountants' names that have reviewed and given their opinions over the last five years:

| Year | Signing accountant name | Audit Opinions |
|---|---|---|
| 2015 | Chen Mei-yan, Wu Lin | Unqualified opinion |
| 2016 | Chen Mei-yan, Wu Lin | Unqualified opinion |
| 2017 | Tang Ci-jie, Chen Mei-yan | Unqualified opinion |
| 2018 | Tang Ci-jie, Chen Mei-yan | Unqualified opinion |
| 2019 | Tang Ci-jie, Chen Mei-yan | Unqualified opinion |

2. Financial analysis of the last five years

(1) Financial Analysis - Adoption of International Financial Reporting Standards (Consolidated)

| Item \ Year | | Financial analysis of the last five years (Note 1) | | | | | Financial information of 2020, as of March 31 (Note 1) |
|---|---|---|---|---|---|---|---|
| | | 2015 | 2016 | 2017 | 2018 | 2019 | |
| Financial structure | Debt to assets ratio (%) | 26.30 | 36.76 | 44.57 | 36.96 | 34.39 | 38.31 |
| | Long-term capital to real estate, plant and equipment ratio (%) | 323.58 | 273.34 | 291.58 | 308.44 | 325.92 | 343.95 |
| Repayment ability | Current ratio (%) | 291.87 | 208.15 | 178.55 | 206.45 | 222.14 | 206.07 |
| | Quick ratio (%) | 223.11 | 114.36 | 97.80 | 127.48 | 154.75 | 120.59 |
| | Interest protection ratio | 109.66 | 666.43 | 46.61 | 58.28 | 95.16 | 156.06 |
| Operational capacity | Receivables turnover ratio (times) | 8.43 | 7.77 | 8.80 | 7.65 | 7.20 | 8.27 |
| | Average collection turnover | 43 | 47 | 41 | 48 | 51 | 44 |
| | Inventory turnover rate (times) | 6.44 | 5.75 | 6.05 | 5.81 | 5.72 | 5.04 |
| | Payable turnover (times) | 9.51 | 7.67 | 9.00 | 7.95 | 6.48 | 6.27 |
| | Average inventory turnover rate | 57 | 63 | 60 | 63 | 64 | 72 |
| | Real estate, plant and equipment turnover (times) | 9.18 | 7.61 | 11.14 | 10.57 | 8.49 | 9.00 |
| | Total asset turnover rate (times) | 1.84 | 1.76 | 2.37 | 2.12 | 1.75 | 1.73 |
| Profitability | Return on assets (%) | 5.76 | 9.04 | 9.76 | 8.19 | 8.9 | 3.44 |
| | Return on equity (%) | 8.31 | 13.17 | 16.21 | 13.63 | 13.69 | 5.38 |
| | Operating income to paid-in capital Ratio (%) | 18.50 | 42.14 | 46.88 | 43.46 | 47.46 | 19.61 |
| | Net profit margin (%) | 3.09 | 5.12 | 4.03 | 3.80 | 5.03 | 7.88 |
| | Earnings per share (TWD) | 1.53 | 2.74 | 4.02 | 3.56 | 3.73 | 1.53 |
| Cash flow | Cash flow ratio (%) | 68.49 | 9.97 | 1.95 | 53.94 | 63.33 | (21.49) |
| | Cash flow adequacy ratio (%) | 90.57 | 57.37 | 44.84 | 69.54 | 98.58 | 81.35 |
| | Cash reinvestment ratio (%) | 11.65 | (2.01) | (7.23) | 19.53 | 21.42 | (12.09) |
| Leverage | Operational leverage | 6.61 | 7.32 | 9.34 | 9.39 | 7.36 | 4.72 |
| | Financial leverage | 1.01 | 1.00 | 1.02 | 1.02 | 1.01 | 1.01 |

Increases or decreases of more than 20% in the financial ratio over the past two years are explained below:

1. Repayment ability:
   The increase in the “interest protection ratio” was due to decrease in interest expenses as a result of increase in bank borrowings.
2. Operational capacity:
   The decrease in the “payables turnover” was due to a decrease in the cost of goods sold.
   The decrease in “turnover of property, plant and equipment” and “turnover of total assets” was due to decrease in revenue.
3. Profitability:
   The increase in “net profit margin” was caused by an increase in the gross profit margin.
4. Cash flow:
   The increase in “cash flow adequacy ratio” was caused by decrease in inventory that led to an increase in cash inflow from operating activities.
5. Leverage:
   The decrease in “operating leverage” was due to a decrease in revenue.

Note 1: The financial information in the above table has been examined/reviewed by our accountants. The information can be referenced from public resources.

A. Financial structure:
   (A) Debt to assets ratio = Total liabilities / Total assets
   (B) Long-term capital to real estate, plant and equipment ratio = (Total equity + Non-current liabilities) / Net value of real estate, plant and equipment

B. Debt paying ability:
   (A) Current ratio = Current assets / Current liabilities
   (B) Quick ratio = (Current assets - Inventory - Prepaid expenses) / Current liabilities
   (C) Interest protection ratio = Net income before tax and interest expense / Interest expense of the current period

C. Operating ability:
   (A) Receivables (including accounts receivable and bills arising from operations) turnover = Net sales / Average balance of average receivables for each period (including accounts receivable and bills arising from operations)
   (B) Average collection turnover = 365 / Receivables turnover
   (C) Inventory turnover rate = Cost of goods sold / Average inventory value
   (D) Payables (including accounts payable and bills arising from operations) turnover = Net sales / Average balance of payables for each period (including accounts payable and bills arising from operations)
   (E) Average inventory turnover rate = 365 / Inventory turnover rate
   (F) Turnover of property, plant and equipment = Net sales / Average net value of property, plant and equipment
   (G) Turnover of total assets = Net sales / Gross average assets

D. Profitability:
   (A) Return on assets = (Profits or losses after tax + interest expenses × (1-tax rate)) / Average total assets
   (B) Return on equity = Profits or losses after tax / Average total equity
   (C) Net profit margin = Profits or losses after tax / Net sales
   (D) Earnings per share = (Income attributed to owners of the parent - Special shares dividends) / Weighted average number of issued shares

E. Cash flow:
   (A) Cash flow ratio = Net cash flow from operating activities / Current liabilities
   (B) Net cash flow adequacy ratio = Net cash flow from operating activities over the last five years / (Capital expenditure + Inventory increase + Cash dividend) over the last five years
   (C) Cash reinvestment ratio = (Net cash flow from operating activities - Cash dividends) / (Gross value of real estate, plant and equipment + Long-term investments + Other non-current assets + Working capital)

F. Leverage:
   (A) Operating leverage = (Net operating income - Variable operating costs and expenses) / Operating profits
   (B) Financial Leverage = Operating income / (Operating income - Interest expenses)

(2) Financial Analysis – Based on International Financial Reporting Standards (Individual)

| Item | Year | Financial analysis of the last five years (Note 1) | | | | |
|---|---|---|---|---|---|---|
| | | **2015** | **2016** | **2017** | **2018** | **2019** |
| Financial structure | Debt to assets ratio (%) | 25.15 | 35.63 | 43.62 | 36.26 | 33.44 |
| | Long-term capital to real estate, plant and equipment ratio Plant, and equipment ratio (%) | 325.03 | 269.51 | 289.15 | 308.01 | 326.36 |
| Repayment ability | Current ratio (%) | 283.42 | 195.33 | 166.15 | 188.75 | 206.01 |
| | Quick ratio (%) | 212.28 | 98.59 | 92.04 | 113.02 | 138.63 |
| | Interest protection ratio | 106.80 | 635.90 | 45.12 | 58.32 | 102.45 |
| Operational capacity | Receivables turnover ratio (times) | 9.29 | 8.51 | 8.87 | 7.56 | 7.40 |
| | Average collection turnover | 39 | 43 | 41 | 48 | 49 |
| | Inventory turnover rate (times) | 6.64 | 5.88 | 6.52 | 6.22 | 5.91 |
| | Payable turnover (times) | 9.46 | 7.69 | 9.08 | 7.85 | 6.44 |
| | Average inventory turnover rate | 55 | 62 | 56 | 59 | 62 |
| | Real estate, plant and equipment Turnover rate (times) | 8.84 | 7.36 | 10.96 | 10.18 | 8.15 |
| | Total asset turnover rate (times) | 1.84 | 1.73 | 2.37 | 2.06 | 1.69 |
| Profitability | Return on assets (%) | 5.87 | 9.20 | 9.95 | 8.31 | 9.01 |
| | Return on equity (%) | 8.31 | 13.19 | 16.24 | 13.64 | 13.69 |
| | Operating income to paid-in capital Ratio (%) | 18.60 | 40.59 | 45.33 | 43.46 | 46.25 |
| | Net profit margin (%) | 3.22 | 5.32 | 4.12 | 3.96 | 5.27 |
| | Earnings per share (TWD) | 1.53 | 2.74 | 4.02 | 3.56 | 3.73 |
| Cash flow | Cash flow ratio (%) | 79.02 | 8.84 | 0.46 | 59.09 | 53.18 |
| | Cash flow adequacy ratio (%) | 59.19 | 61.06 | 49.30 | 80.49 | 100.63 |
| | Cash reinvestment ratio (%) | 13.61 | (2.84) | (8.42) | 21.81 | 15.72 |
| Leverage | Operational leverage | 6.79 | 7.78 | 10.10 | 9.77 | 7.93 |
| | Financial leverage | 1.01 | 1.00 | 1.02 | 1.02 | 1.01 |

Increases or decreases of more than 20% in the financial ratio over the past two years are explained below:

1. Repayment ability:
   The increase in the "interest protection ratio" was due to decrease in interest expenses as a result of increase in bank borrowings.
2. Operational capacity:
   The decrease in the "payables turnover" was due to a decrease in the cost of goods sold.
   The decrease in "turnover of property, plant and equipment" and "turnover of total assets" was due to decrease in revenue.
3. Profitability:
   The increase in "net profit margin" was caused by an increase in the gross profit margin.
4. Cash flow:
   The increase in "cash flow adequacy ratio" and "cash reinvestment ratio" was caused by decrease in inventory that led to an increase in cash inflow from operating activities.
5. Leverage:
   The decrease in "operating leverage" was due to a decrease in revenue.

Note 1: The financial information in the above table has been examined/reviewed by our accountants. The information can be referenced from public resources.

A. Financial structure:
   (A) Debt to assets ratio = Total liabilities / Total assets
   (B) Long-term capital to real estate, plant and equipment ratio = (Total equity + Non-current liabilities) / Net value of real estate, plant and equipment

B. Debt paying ability:
   (A) Current ratio = Current assets / Current liabilities
   (B) Quick ratio = (Current assets - Inventory - Prepaid expenses) / Current liabilities
   (C) Interest protection ratio = Net income before tax and interest expense / Interest expense of the current period

C. Operating ability:
   (A) Receivables (including accounts receivable and bills arising from operations) turnover = Net sales / Average balance of average receivables for each period (including accounts receivable and bills arising from operations)
   (B) Average collection turnover = 365 / Receivables turnover
   (C) Inventory turnover rate = Cost of goods sold / Average inventory value
   (D) Payables (including accounts payable and bills arising from operations) turnover = Net sales / Average balance of payables for each period (including accounts payable and bills arising from operations)
   (E) Average inventory turnover rate = 365 / Inventory turnover rate
   (F) Turnover of property, plant and equipment = Net sales / Average net value of property, plant and equipment
   (G) Turnover of total assets = Net sales / Gross average assets

D. Profitability:
   (A) Return on assets = (Profits or losses after tax + interest expenses × (1-tax rate)) / Average total assets
   (B) Return on equity = Profits or losses after tax / Average total equity
   (C) Net profit margin = Profits or losses after tax / Net sales
   (D) Earnings per share = (Income attributed to owners of the parent - Special shares dividends) / Weighted average number of issued shares

E. Cash flow:
   (A) Cash flow ratio = Net cash flow from operating activities / Current liabilities
   (B) Net cash flow adequacy ratio = Net cash flow from operating activities over the last five years / (Capital expenditure + Inventory increase + Cash dividend) over the last five years
   (C) Cash reinvestment ratio = (Net cash flow from operating activities - Cash dividends) / (Gross value of real estate, plant and equipment + Long-term investments + Other non-current assets + Working capital)

F. Leverage:
   (A) Operating leverage = (Net operating income - Variable operating costs and expenses) / Operating profits
   (B) Financial Leverage = Operating income / (Operating income - Interest expenses)

3. Auditor's review report of the most recent annual financial report

# Audit Committee's Review Report

The Board of Directors drafted the business report, financial statements and proposal on profit distribution for FY 2019. An audit report for the financial statements was prepared jointly by Philip Tang and Grace Chen, certified public accountants (CPAs) of KPMG Taiwan. The review of the business report, financial statements and proposal on profit distribution above did not find any inconsistencies. The review report is thus presented for further examination pursuant to Article 14-4 of the Securities and Exchange Act and Article 219 of the Company Act.

To

2020 Shareholders' Meeting of Apacer Technology Inc.

Audit Committee Convener: Wu Guang-yi 吳廣義

February 25, 2020

4. Financial report of the most recent year

(1) Consolidated financial report

# Declaration

With regard to the year of 2019 (from January 1, 2019 to December 31, 2019), our company, in accordance with the "Reporting Standards for Consolidated Statements of Affiliated Enterprises and Reports on Affiliations," the International Financial Reporting Standards (IFRS) as recognized by the Financial Supervisory Commission, we state that the parent company under IFRS 10 is the same as the company in the the consolidated statements. The information that the consolidated statements of the affiliated enterprises must disclose were already previously disclosed in the consolidated statements of the parent enterprise; therefore there is no need to prepare separate consolidated statements for these affiliated enterprises.

Declared by

Company Name: Apacer Technology Co., Ltd.

Chairman: Austin Chen

Date: February 25, 2020

## Independent Auditors' Report

The Board of Directors of Apacer Technology Inc.:

**Opinion**

We have audited the consolidated financial statements of Apacer Technology Inc. and its subsidiaries (the "Group"), which comprise the consolidated balance sheets as of December 31, 2019 and 2018, and the consolidated statements of comprehensive income, changes in equity and cash flows for the years then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2019 and 2018, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with the Regulations Governing the Preparation of Financial Reports by Securities Issuers and with the International Financial Reporting Standards, International Accounting Standards, interpretations as well as related guidence endorsed and issued into effect by the Financial Supervisory Commission of the Republic of China.

**Basis for Opinion**

We conducted our audits in accordance with the Regulations Governing Auditing and Certification of Financial Statements by Certified Public Accountants and the auditing standards generally accepted in the Republic of China. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Consolidated Financial Statements section of our report. We are independent of the Group in accordance with the Certified Public Accountants Code of Professional Ethics in Republic of China (the "Code"), and we have fulfilled our other ethical responsibilities in accordance with the Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis of our opinion.

**Key Audit Matters**

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Key audit matters for the Group's consolidated financial statements for the year ended December 31, 2019 are stated as follows:

1. Revenue recognition

   Please refer to notes 4(o) and 6(s) for the accounting policy on "Revenue recognition" and "Revenue from contracts with customers" for the related disclosures, respectively, of the notes to consolidated financial statements.

Description of key audit matter:

The Group engages primarily in the manufacturing and sales of memory modules and flash memory products, with product diversification and marketing channels spread globally. The Group recognizes its revenue depending on the various trade terms in each individual sale transaction and the transfer of control of the goods, which are considered to be complex in determining the timing of revenue recognition. Consequently, the revenue recognition has been identified as one of the key audit matters.

How the matter was addressed in our audit:

In relation to the key audit matters above, our principal audit procedures included understanding and testing the design and operating effectiveness of the Group's internal controls over revenue recognition; assessing whether the accounting policy of the timing of revenue recognition is appropriate through understanding the main types of revenues of the Group, and reviewing the sales contracts and the related trade terms with customers; assessing whether the accounting treatment of revenue recognition is appropriate through performing a sample test of the original documents of sales transaction; performing a sample test of sales transactions that took place before and after the balance sheet date, and reviewing the related documents to understand and analyze the reason for any identified sales returns and allowances that took place after the balance sheet date, to assess whether the revenue is recognized within the proper period.

2. Valuation of inventories

Please refer to notes 4(h), 5 and 6(f) for the inventory accounting policy, "Critical accounting judgments and key sources of estimation uncertainty" for estimation uncertainty of inventory valuation, and "Inventories" for the related disclosures, respectively, of the notes to consolidated financial statements.

Description of key audit matter:

The Group's inventories are measured at the lower of cost and net realizable value. Management is required to make judgments and estimates in determining the net realizable value of inventories on the reporting date. The market prices of the Group's main raw materials, constituting the majority amount of product cost, fluctuate rapidly and the life cycle of certain products of the Group are short, which could possibly result in a price decline and obsolescence of inventories, wherein the inventories cost may exceed its net realizable value, as the Group fails to timely respond to market changes. Therefore, the valuation of inventories has been identified as one of the key audit matters.

How the matter was addressed in our audit:

In relation to the key audit matters above, our principal audit procedures included obtaining and understanding the Group's accounting policy of valuation of inventories, performing a retrospective test to understand the reasonableness of estimations of allowance for inventory valuation loss with reference to actual write-off of inventories in a subsequent period, and evaluating the reasonableness of the accounting policy of valuation of inventories; as well as performing a sample test of the estimated selling price provided by Management to assess the reasonableness of the net realizable value and allowance for inventory valuation loss.

**Other Matter**

Apacer Technology Inc. has additionally prepared its parent-company-only financial statements as of and for the years ended December 31, 2019 and 2018, on which we have issued an unmodified audit opinion.

**Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements**

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with the Regulations Governing the Preparation of Financial Reports by Securities Issuers and International Financial Reporting Standards, International Accounting Standards, interpretation as well as related guidance endorsed by the Financial Supervisory Commission of the Republic of China, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Those charged with governance (including members of the Audit Committee) are responsible for overseeing the Group's financial reporting process.

**Auditor's Responsibilities for the Audit of the Consolidated Financial Statements**

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the auditing standards generally accepted in the Republic of China will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with auditing standards generally accepted in the Republic of China, we exercised professional judgment and maintained professional skepticism throughout the audit. We also:

1. Identified and assessed the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, designed and performed audit procedures responsive to those risks, and obtained audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

2. Obtained an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.

3. Evaluated the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

4. Concluded on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.

5. Evaluated the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

6. Obtained sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the Group audit. We remained solely responsible for our audit opinion.

We communicated with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identified during our audit.

We also provided those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determined those matters that were of most significance in the audit of the consolidated financial statements for the year ended December 31, 2019 and are therefore the key audit matters. We described these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determined that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The engagement partners on the audit resulting in this independent auditors' audit report are Tzu-Chieh Tang and Mei-Yen Chen.

KPMG

Taipei, Taiwan (Republic of China)
February 25, 2020

**Notes to Readers**

The accompanying consolidated financial statements are intended only to present the consolidated financial position, financial performance and cash flows in accordance with the accounting principles and practices generally accepted in the Republic of China and not those of any other jurisdictions. The standards, procedures and practices to audit such consolidated financial statements are those generally accepted and applied in the Republic of China.

The independent auditors' audit report and the accompanying consolidated financial statements are the English translation of the Chinese version prepared and used in the Republic of China. If there is any conflict between, or any difference in the interpretation of the English and Chinese language independent auditors' audit report and consolidated financial statements, the Chinese version shall prevail.

(English Translation of Consolidated Financial Statements Originally Issued in Chinese)

# APACER TECHNOLOGY INC. AND SUBSIDIARIES

## Consolidated Balance Sheets

## December 31, 2019 and 2018

## (Expressed in Thousands of New Taiwan Dollars)

| | Assets | December 31, 2019 Amount | % | December 31, 2018 Amount | % |
|---|---|---|---|---|---|
| | **Current assets:** | | | | |
| 1100 | Cash and cash equivalents (note 6(a)) | $ 696,497 | 16 | 741,561 | 17 |
| 1110 | Financial assets at fair value through profit or loss－current (note 6(b)) | 139,604 | 3 | 454 | - |
| 1170 | Notes and accounts receivable, net (notes 6(d) and (s)) | 903,641 | 21 | 1,174,106 | 28 |
| 1180 | Accounts receivable from related parties (notes 6(d), (s) and 7) | 532 | - | 1,039 | - |
| 1200 | Other receivables (note 6(e)) | 50,459 | 1 | 43,760 | 1 |
| 1310 | Inventories (note 6(f)) | 935,783 | 22 | 1,193,885 | 28 |
| 1476 | Other financial assets－current (note 6(a)) | 409,700 | 10 | - | - |
| 1479 | Other current assets | 22,390 | 1 | 20,871 | - |
| | **Total current assets** | 3,158,606 | 74 | 3,175,676 | 74 |
| | **Non-current assets:** | | | | |
| 1517 | Financial assets at fair value through other comprehensive income－non-current (note 6(c)) | 41,994 | 1 | 44,937 | 1 |
| 1550 | Investments accounted for using equity method (note 6(g)) | - | - | 884 | - |
| 1600 | Property, plant and equipment (note 6(h)) | 876,060 | 21 | 887,458 | 21 |
| 1755 | Right-of-use assets (note 6(i)) | 35,110 | 1 | - | - |
| 1780 | Intangible assets (note 6(j)) | 62,278 | 1 | 66,280 | 2 |
| 1840 | Deferred income tax assets (note 6(p)) | 96,128 | 2 | 92,831 | 2 |
| 1980 | Other financial assets－non-current | 6,895 | - | 7,062 | - |
| 1990 | Other non-current assets | 123 | - | 391 | - |
| | **Total non-current assets** | 1,118,588 | 26 | 1,099,843 | 26 |
| | **Total assets** | $ 4,277,194 | 100 | 4,275,519 | 100 |

| | Liabilities and Equity | December 31, 2019 Amount | % | December 31, 2018 Amount | % |
|---|---|---|---|---|---|
| | **Current liabilities:** | | | | |
| 2100 | Short-term borrowings (note 6(k)) | $ 74,950 | 2 | 138,218 | 3 |
| 2120 | Financial liabilities at fair value through profit or loss－current (note 6(b)) | 124 | - | 289 | - |
| 2170 | Notes and accounts payable | 743,450 | 18 | 820,008 | 19 |
| 2180 | Accounts payable to related parties (note 7) | 182,615 | 4 | 132,755 | 3 |
| 2200 | Other payables (notes 6(t) and 7) | 306,785 | 7 | 341,251 | 8 |
| 2230 | Current income tax liabilities | 54,382 | 1 | 56,193 | 2 |
| 2250 | Provisions－current (note 6(m)) | 11,685 | - | 12,625 | - |
| 2280 | Lease liabilities－current (note 6(l)) | 15,674 | - | - | - |
| 2300 | Other current liabilities | 32,257 | 1 | 36,894 | 1 |
| | **Total current liabilities** | 1,421,922 | 33 | 1,538,233 | 36 |
| | **Non-current liabilities:** | | | | |
| 2570 | Deferred income tax liabilities (note 6(p)) | 1,779 | - | 903 | - |
| 2580 | Lease liabilities－non-current (note 6(l)) | 19,229 | - | - | - |
| 2640 | Net defined benefit liabilities (note 6(o)) | 27,868 | 1 | 25,570 | 1 |
| 2645 | Guarantee deposits | - | - | 15,357 | - |
| | **Total non-current liabilities** | 48,876 | 1 | 41,830 | 1 |
| | **Total liabilities** | 1,470,798 | 34 | 1,580,063 | 37 |
| | **Equity attributable to shareholders of the Company (note 6(q)):** | | | | |
| 3100 | Common stock | 1,008,978 | 24 | 1,008,978 | 24 |
| 3200 | Capital surplus | 359,910 | 8 | 359,910 | 8 |
| 3300 | Retained earnings | 1,515,937 | 36 | 1,393,935 | 33 |
| 3400 | Other equity | (78,579) | (2) | (67,540) | (2) |
| | **Total equity attributable to shareholders of the Company** | 2,806,246 | 66 | 2,695,283 | 63 |
| 36XX | Non-controlling interests | 150 | - | 173 | - |
| | **Total equity** | 2,806,396 | 66 | 2,695,456 | 63 |
| | **Total liabilities and equity** | $ 4,277,194 | 100 | 4,275,519 | 100 |



See accompanying notes to the consolidated financial statements.

(English Translation of Consolidated Financial Statements Originally Issued in Chinese)

# APACER TECHNOLOGY INC. AND SUBSIDIARIES

## Consolidated Statements of Comprehensive Income

## For the years ended December 31, 2019 and 2018

## (Expressed in Thousands of New Taiwan Dollars, Except for Earnings Per Share)

| | | 2019 | | 2018 | |
|---|---|---|---|---|---|
| | | Amount | % | Amount | % |
| 4000 | **Revenue (notes 6(s), 7 and 14)** | $ 7,485,821 | 100 | 9,441,618 | 100 |
| 5000 | **Cost of revenue (notes 6(f), (h), (j), (m), (n), (o), 7 and 12)** | (6,085,578) | (81) | (8,132,329) | (86) |
| 5900 | **Gross profit** | 1,400,243 | 19 | 1,309,289 | 14 |
| 6000 | **Operating expenses (notes 6(d), (h), (i), (j), (l), (n), (o), (t), 7 and 12):** | | | | |
| 6100 | Selling expenses | (560,260) | (8) | (553,688) | (6) |
| 6200 | Administrative expenses | (216,912) | (3) | (195,725) | (2) |
| 6300 | Research and development expenses | (117,884) | (2) | (120,479) | (1) |
| 6450 | Expected credit losses | (21,592) | - | (1,514) | - |
| 6000 | **Total operating expenses** | (916,648) | (13) | (871,406) | (9) |
| 6900 | **Operating income** | 483,595 | 6 | 437,883 | 5 |
| 7000 | **Non-operating income and loss (notes 6(g), (h), (l), (n) and (u)):** | | | | |
| 7010 | Other income | 5,376 | - | 4,932 | - |
| 7020 | Other gains and losses－net | (4,101) | - | 5,868 | - |
| 7050 | Finance costs | (5,086) | - | (7,655) | - |
| 7770 | Share of losses of associates | (884) | - | (2,522) | - |
| | **Total non-operating income and loss** | (4,695) | - | 623 | - |
| 7900 | **Income before income tax** | 478,900 | 6 | 438,506 | 5 |
| 7950 | **Less: income tax expenses (note 6(p))** | (102,271) | (1) | (79,676) | (1) |
| | **Net income** | 376,629 | 5 | 358,830 | 4 |
| | **Other comprehensive income (notes 6(o), (p), (q) and (v)):** | | | | |
| 8310 | **Items that will not be reclassified subsequently to profit or loss:** | | | | |
| 8311 | Remeasurements of defined benefit plans | (2,292) | - | (3,207) | - |
| 8316 | Unrealized gains (losses) from investments in equity instruments measured at fair value through other comprehensive income | (2,943) | - | 11,135 | - |
| 8349 | Less: income tax related to items that will not be reclassified subsequently to profit or loss | 458 | - | 641 | - |
| | | (4,777) | - | 8,569 | - |
| 8360 | **Items that may be reclassified subsequently to profit or loss:** | | | | |
| 8361 | Exchange differences on translation of foreign operations | (8,106) | - | 8,257 | - |
| 8399 | Less: income tax related to items that may be reclassified subsequently to profit or loss | - | - | - | - |
| | | (8,106) | - | 8,257 | - |
| | **Other comprehensive income for the year, net of income tax** | (12,883) | - | 16,826 | - |
| 8500 | **Total comprehensive income for the year** | **$ 363,746** | **5** | **375,656** | **4** |
| 8600 | **Net income attributable to:** | | | | |
| 8610 | Shareholders of the Company | $ 376,642 | 5 | 358,839 | 4 |
| 8620 | Non-controlling interests | (13) | - | (9) | - |
| | | **$ 376,629** | **5** | **358,830** | **4** |
| 8700 | **Total comprehensive income attributable to:** | | | | |
| 8710 | Shareholders of the Company | $ 363,769 | 5 | 375,668 | 4 |
| 8720 | Non-controlling interests | (23) | - | (12) | - |
| | | **$ 363,746** | **5** | **375,656** | **4** |
| | **Earnings per share (in New Taiwan dollars) (note 6(r)) :** | | | | |
| 9750 | Basic earnings per share | **$** | **3.73** | | **3.56** |
| 9850 | Diluted earnings per share | **$** | **3.68** | | **3.50** |

See accompanying notes to the consolidated financial statements.

(English Translation of Consolidated Financial Statements Originally Issued in Chinese)

# APACER TECHNOLOGY INC. AND SUBSIDIARIES

## Consolidated Statements of Changes in Equity

## For the years ended December 31, 2019 and 2018

## (Expressed in Thousands of New Taiwan Dollars)

| | Attributable to shareholders of the Company | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Retained earnings | | | | Total other equity | | | | | |
| | Common stock | Capital surplus | Legal reserve | Special reserve | Unappropriated earnings | Total | Exchange differences on translation of foreign operations | Unrealized gains (losses) on financial assets measured at fair value through other comprehensive income | Total | Total equity of the Company | Non-controlling interests | Total equity |
| **Balance at January 1, 2018** | $ 1,008,978 | 358,225 | 267,690 | 30,971 | 951,412 | 1,250,073 | (49,321) | - | (49,321) | 2,567,955 | 185 | 2,568,140 |
| Effects of retrospective application | - | - | - | - | 49,923 | 49,923 | - | (37,614) | (37,614) | 12,309 | - | 12,309 |
| Balance at January 1, 2018 after adjustments | 1,008,978 | 358,225 | 267,690 | 30,971 | 1,001,335 | 1,299,996 | (49,321) | (37,614) | (86,935) | 2,580,264 | 185 | 2,580,449 |
| Appropriation of earnings: | | | | | | | | | | | | |
| Legal reserve | - | - | 40,542 | - | (40,542) | - | - | - | - | - | - | - |
| Special reserve | - | - | - | 18,350 | (18,350) | - | - | - | - | - | - | - |
| Cash dividends distributed to shareholders | - | - | - | - | (262,334) | (262,334) | - | - | - | (262,334) | - | (262,334) |
| Net income in 2018 | - | - | - | - | 358,839 | 358,839 | - | - | - | 358,839 | (9) | 358,830 |
| Other comprehensive income in 2018 | - | - | - | - | (2,566) | (2,566) | 8,260 | 11,135 | 19,395 | 16,829 | (3) | 16,826 |
| Total comprehensive income in 2018 | - | - | - | - | 356,273 | 356,273 | 8,260 | 11,135 | 19,395 | 375,668 | (12) | 375,656 |
| Changes in equity of associates accounted for using equity method | - | 1,685 | - | - | - | - | - | - | - | 1,685 | - | 1,685 |
| **Balance at December 31, 2018** | 1,008,978 | 359,910 | 308,232 | 49,321 | 1,036,382 | 1,393,935 | (41,061) | (26,479) | (67,540) | 2,695,283 | 173 | 2,695,456 |
| Effects of retrospective application | - | - | - | - | (561) | (561) | - | - | - | (561) | - | (561) |
| Balance at January 1, 2019 after adjustments | 1,008,978 | 359,910 | 308,232 | 49,321 | 1,035,821 | 1,393,374 | (41,061) | (26,479) | (67,540) | 2,694,722 | 173 | 2,694,895 |
| Appropriation of earnings: | | | | | | | | | | | | |
| Legal reserve | - | - | 35,884 | - | (35,884) | - | - | - | - | - | - | - |
| Special reserve | - | - | - | 18,219 | (18,219) | - | - | - | - | - | - | - |
| Cash dividends distributed to shareholders | - | - | - | - | (252,245) | (252,245) | - | - | - | (252,245) | - | (252,245) |
| Net income in 2019 | - | - | - | - | 376,642 | 376,642 | - | - | - | 376,642 | (13) | 376,629 |
| Other comprehensive income in 2019 | - | - | - | - | (1,834) | (1,834) | (8,098) | (2,941) | (11,039) | (12,873) | (10) | (12,883) |
| Total comprehensive income in 2019 | - | - | - | - | 374,808 | 374,808 | (8,098) | (2,941) | (11,039) | 363,769 | (23) | 363,746 |
| **Balance at December 31, 2019** | **$ 1,008,978** | **359,910** | **344,116** | **67,540** | **1,104,281** | **1,515,937** | **(49,159)** | **(29,420)** | **(78,579)** | **2,806,246** | **150** | **2,806,396** |

See accompanying notes to the consolidated financial statements.

(English Translation of Consolidated Financial Statements Originally Issued in Chinese)

# APACER TECHNOLOGY INC. AND SUBSIDIARIES

## Consolidated Statements of Cash Flows

## For the years ended December 31, 2019 and 2018

## (Expressed in Thousands of New Taiwan Dollars)

| | 2019 | 2018 |
|---|---|---|
| **Cash flows from operating activities:** | | |
| **Income before income tax** | $ 478,900 | 438,506 |
| **Adjustments:** | | |
| Depreciation | 60,722 | 36,274 |
| Amortization | 12,009 | 9,544 |
| Expected credit loss | 21,592 | 1,514 |
| Interest expense | 5,086 | 7,655 |
| Interest income | (5,376) | (1,776) |
| Share of losses of associates | 884 | 2,522 |
| Loss (gain) on disposal of property, plant and equipment | 416 | (343) |
| Impairment loss on non-financial assets | - | 127 |
| Subtotal | 95,333 | 55,517 |
| Changes in operating assets and liabilities: | | |
| Changes in operating assets: | | |
| Financial assets at fair value through profit or loss | (250) | 234 |
| Notes and accounts receivable | 248,873 | 118,403 |
| Accounts receivable from related parties | 507 | (1,035) |
| Other receivables | (6,508) | 32,833 |
| Inventories | 258,102 | 411,981 |
| Other current assets | 524 | (3,709) |
| Net changes in operating assets | 501,248 | 558,707 |
| Changes in operating liabilities: | | |
| Financial liabilities at fair value through profit or loss | (165) | (65) |
| Notes and accounts payable | (76,558) | (62,984) |
| Accounts payable to related parties | 49,860 | (76,227) |
| Other payables | (34,537) | 28,772 |
| Provisions | (940) | (3,070) |
| Other current liabilities | (4,637) | 10,187 |
| Net defined benefit liabilities | 6 | 4 |
| Net changes in operating liabilities | (66,971) | (103,383) |
| Total changes in operating assets and liabilities | 434,277 | 455,324 |
| Total adjustments | 529,610 | 510,841 |
| Cash provided by operations | 1,008,510 | 949,347 |
| Interest received | 5,185 | 1,797 |
| Interest paid | (5,015) | (7,872) |
| Income taxes paid | (108,113) | (113,561) |
| **Net cash provided by operating activities** | 900,567 | 829,711 |

See accompanying notes to the consolidated financial statements.

(English Translation of Consolidated Financial Statements Originally Issued in Chinese)

**APACER TECHNOLOGY INC. AND SUBSIDIARIES**

**Consolidated Statements of Cash Flows (Continued)**

**For the years ended December 31, 2019 and 2018**

**(Expressed in Thousands of New Taiwan Dollars)**

| | 2019 | 2018 |
|---|---|---|
| **Cash flows from investing activities:** | | |
| Acquisition of financial assets at fair value through other comprehensive income | - | (3,940) |
| Acquisition of financial assets at fair value through profit or loss | (138,900) | - |
| Acquisition of property, plant and equipment | (27,220) | (25,549) |
| Proceeds from disposal of property, plant and equipment | - | 343 |
| Acquisition of intangible assets | (4,141) | (45,392) |
| Increase in other financial assets—current | (409,700) | - |
| Decrease in other financial assets—non-current | 167 | 579 |
| Decrease (increase) in other non-current assets | (3,651) | 16,956 |
| **Net cash used in investing activities** | (583,445) | (57,003) |
| **Cash flows from financing activities:** | | |
| Decrease in short-term loans | (63,268) | (354,022) |
| Decrease in guarantee deposits | (15,357) | (15,742) |
| Payment of lease liabilities | (22,657) | - |
| Cash dividends distributed to shareholders | (252,245) | (262,334) |
| **Net cash used in financing activities** | (353,527) | (632,098) |
| **Effect of foreign exchange rate changes** | (8,659) | 9,338 |
| **Net increase (decrease) in cash and cash equivalents** | (45,064) | 149,948 |
| **Cash and cash equivalents at beginning of period** | 741,561 | 591,613 |
| **Cash and cash equivalents at end of period** | $ **696,497** | **741,561** |

See accompanying notes to the consolidated financial statements.

(English Translation of Consolidated Financial Statements Originally Issued in Chinese)

# APACER TECHNOLOGY INC. AND SUBSIDIARIES

## Notes to the Consolidated Financial Statements

## For the years ended December 31, 2019 and 2018

## (Expressed in Thousands of New Taiwan Dollars, Unless Otherwise Specified)

**1. Organization and business**

Apacer Technology Inc. (the "Company") was incorporated on April 16, 1997 as a company limited by shares under the laws of the Republic of China ("R.O.C.") and registered under the Ministry of Economic Affairs, R.O.C. The address of the Company's registered office is 1F, No.32, Zhongcheng Rd., Tucheng Dist., New Taipei City, Taiwan. The Company and its subsidiaries (collectively the "Group") are engaged in the research and development, design, manufacturing, processing, maintenance and sales of memory modules, flash memory cards and consumer electronic products.

**2. Authorization of the consolidated financial statements**

These consolidated financial statements were authorized for issuance by the Board of Directors on February 25, 2020.

**3. Application of new, revised or amended accounting standards and interpretations**

(a) The impact of the International Financial Reporting Standards ("IFRSs") endorsed by the Financial Supervisory Commission, R.O.C. ("FSC") which have already been adopted.

The following new standards, interpretations and amendments have been endorsed by the FSC and are effective for annual periods beginning on or after January 1, 2019.

| New, Revised or Amended Standards and Interpretations | Effective date per IASB |
|---|---|
| IFRS 16 "Leases" | January 1, 2019 |
| IFRIC 23 "Uncertainty over Income Tax Treatments" | January 1, 2019 |
| Amendments to IFRS 9 "Prepayment features with negative compensation" | January 1, 2019 |
| Amendments to IAS 19 "Plan Amendment, Curtailment or Settlement" | January 1, 2019 |
| Amendments to IAS 28 "Long-term interests in associates and joint ventures" | January 1, 2019 |
| Annual Improvements to IFRS Standards 2015–2017 Cycle | January 1, 2019 |

Except for the following items, the Group assessed that the initial application of the above IFRSs would not have any material impact on the consolidated financial statements. The extent and impact of changes are as follows:

(i) IFRS 16"Leases"

IFRS 16 replaces the existing leases guidance, including IAS 17 " Leases" , IFRIC 4 " Determining whether an Arrangement contains a Lease" , SIC-15 " Operating Leases – Incentives" and SIC-27 "Evaluating the Substance of Transactions Involving the Legal Form of a Lease".

The Group applied IFRS 16 using the modified retrospective approach, under which the cumulative effect of initial application is recognized in retained earnings on January 1, 2019. The extent and impact of the changes in accounting policies are disclosed below:

1) Definition of a lease

Previously, the Group determined at contract inception whether an arrangement is or contains a lease under IFRIC 4. Under IFRS 16, the Group assesses whether a contract is or contains a lease based on the definition of a lease, as explained in Note 4(k).

On transition to IFRS 16, the Group elected to apply the practical expedient to grandfather the assessment of which transactions are leases. The Group applied IFRS 16 only to contracts that were previously identified as leases. Contracts that were not identified as leases under IAS 17 and IFRIC 4 were not reassessed for whether there is a lease. Therefore, the definition of a lease under IFRS 16 was applied only to contracts entered into or changed on or after January 1, 2019.

2) As a lessee

As a lessee, the Group previously classified leases as operating or finance leases based on its assessment of whether the lease transferred significantly all of the risks and rewards incidental to ownership of the underlying asset to the Group. Under IFRS 16, the Group recognizes right-of-use assets and lease liabilities for most leases – i.e. these leases are on-balance sheet.

The Group decided to apply recognition exemptions to short-term leases of office equipments.

Leases classified as operating leases under IAS 17, at transition, lease liabilities were measured at the present value of the remaining lease payments, discounted at the Group's incremental borrowing rate as, at January 1, 2019. Right-of-use assets are measured at their carrying amount as if IFRS 16 had been applied since the commencement date, discounted using the lessee's incremental borrowing rate at the date of initial application.

In addition, the Group used the following practical expedients when applying IFRS 16 to leases.

— Applied a single discount rate to a portfolio of leases with similar characteristics.

— Excluded initial direct costs from measuring the right-of-use assets at the date of initial application.

3) Impacts on financial statements

On transition to IFRS 16, the Group recognised additional $38,794 of right-of-use assets and $39,355 of lease liabilities, recognising the difference in retained earnings. When measuring lease liabilities, the Group discounted lease payments using its incremental borrowing rate at January 1, 2019. The weighted-average rate applied is 1.93%.

The explanation of differences between operating lease commitments disclosed at the end of the annual reporting period immediately preceding the date of initial application, and lease liabilities recognized in the statement of financial position at the date of initial application disclosed as follows:

| | January 1, 2019 |
|---|---|
| Operating lease commitment at December 31, 2018 as disclosed in the Group's consolidated financial statements | $ 43,632 |
| Discounted using the incremental borrowing rate at January 1, 2019 (Same as lease liabilities recognized at January 1, 2019) | $ 39,355 |

(b) The impact of IFRS endorsed by FSC but not yet effective

The following new standards, interpretations and amendments have been endorsed by the FSC and are effective for annual periods beginning on or after January 1, 2020 in accordance with Rule No. 1080323028 issued by the FSC on July 29, 2019:

| New, Revised or Amended Standards and Interpretations | Effective date per IASB |
|---|---|
| Amendments to IFRS 3 "Definition of a Business" | January 1, 2020 |
| Amendments to IFRS 9, IAS39 and IFRS7 "Interest Rate Benchmark Reform" | January 1, 2020 |
| Amendments to IAS 1 and IAS 8 "Definition of Material" | January 1, 2020 |

The Group assesses that the adoption of the abovementioned standards would not have any material impact on its consolidated financial statements.

(c) The impact of IFRS issued by IASB but not yet endorsed by the FSC

The following IFRSs have been issued by the IASB, but have yet to be endorsed by the FSC:

| New, Revised or Amended Standards and Interpretations | Effective date per IASB |
|---|---|
| Amendments to IFRS 10 and IAS 28 "Sale or Contribution of Assets Between an Investor and Its Associate or Joint Venture" | Effective date to be determined by IASB |
| IFRS 17 "Insurance Contracts" | January 1, 2021 |
| Amendments to IAS 1 "Classification of Liabilities as Current or Non-current" | January 1, 2022 |

The Group assessed that the above IFRSs will be irrelevant to it.

## 4. Summary of significant accounting policies:

The significant accounting policies presented in the consolidated financial statements are summarised as follows. Except for those specifically indicated, the following accounting policies were applied consistently throughout the periods presented in these financial statements.

(a) Statement of compliance

The Group's accompanying consolidated financial statements have been prepared in accordance with the Regulations Governing the Preparation of Financial Reports by Securities Issuers (the "Regulations") and the IFRSs, IASs, IFRIC Interpretations, and SIC Interpretations endorsed and issued into effect by the FSC (collectively as "Taiwan-IFRSs").

(b) Basis of preparation

(i) Basis of measurement

The accompanying consolidated financial statements have been prepared on a historical cost basis except for the following items in the balance sheets:

1) Financial instruments measured at fair value through profit or loss (including derivative financial instruments);
2) Financial assets at fair value through other comprehensive income; and
3) Defined benefit liabilities are recognized as the present value of the defined benefit obligation less fair value of the plan assets and the effect of the asset ceiling mentioned in note 4(p).

(ii) Functional and presentation currency

The functional currency of each Group entity is determined based on the primary economic environment in which the entity operates. The Group's consolidated financial statements are presented in New Taiwan dollars, which is the Company's functional currency. Except when otherwise indicated, all financial information presented in New Taiwan dollars has been rounded to the nearest thousand.

(c) Basis of consolidation

(i) Principles of preparation of consolidated financial statements

The accompanying consolidated financial statements incorporate the financial statements of the Company and its controlled entities (the subsidiaries). The Company controls an investee when it is exposed, or has rights, to variable return from its involvement with the investee and has the ability to affect those returns through its power over the investee.

The financial statements of the subsidiaries are included in the consolidated financial statements from the date that control commences until the date that control ceases. Intra-group balances and transactions, and any unrealized profit and loss arising from intra-group transactions are eliminated in preparing the consolidated financial statements. Total comprehensive income of subsidiaries is attributed to the shareholders of the Company and to the non-controlling interests even if this results in the non-controlling interests having a deficit balance.

When necessary, financial statements of subsidiaries are adjusted to align their accounting policies with those adopted by the Company.

Changes in the Group's ownership interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions. The difference between the adjustment of the non-controlling interest and the fair value of the payment or receipt is recognized as equity and belongs to the Company.

(ii) List of subsidiaries in the consolidated financial statements

The subsidiaries included in the consolidated financial statements were as follows:

| | | | Percentage of Ownership | |
|---|---|---|---|---|
| **Name of Investor** | **Name of Investee** | **Main Business and Products** | **December 31, 2019** | **December 31, 2018** |
| The Company | Apacer Memory America Inc. (AMA) | Sales of memory modules, flash memory cards and consumer electronic products | 100.00 % | 100.00 % |
| The Company | Apacer Technology B.V. (AMH) | Sales of memory modules, flash memory cards and consumer electronic products | 100.00 % | 100.00 % |
| The Company | Apacer Technology Japan Corp. (AMJ) | Sales of memory modules, flash memory cards and consumer electronic products | 100.00 % | 100.00 % |
| The Company | Kingdom Corp. Limited (AMK) | Sales of memory modules, flash memory cards and consumer electronic products | 100.00 % | 100.00 % |
| The Company /ACYB | Apacer Technologies Private Limited (ATPL) | Sales of memory modules, flash memory cards and consumer electronic products | 100.00 % | 100.00 % |
| The Company | Apacer Technology (BVI) Inc. (ACYB) | Investment holding activity | 100.00 % | 100.00 % |
| ACYB | Apacer Electronic (Shanghai) Co., Ltd. (AMC) | Sales of memory modules, flash memory cards and consumer electronic products | 100.00 % | 100.00 % |
| AMK | Shenzhen Kylinesports Technology Co. (AMS) | Sales of gaming products and consumer electronic products | 99.00 % | 99.00 % |

(iii) List of subsidiaries which are not included in the consolidated financial statements: None.

(d) Foreign currency

(i) Foreign currency transactions

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions. At the end of each subsequent reporting period, monetary items denominated in foreign currencies are translated into the functional currencies using the exchange rate at that date. Non-monetary items denominated in foreign currencies that are measured at fair value are translated into the functional currencies using the exchange rate at the date that the fair value was determined. Non-monetary items denominated in foreign currencies that are measured based on historical cost are translated using the exchange rate at the date of the transaction.

Exchange differences are generally recognized in profit or loss, except for those differences relating to equity investments designated as at fair value through other comprehensive income, which are recognized in other comprehensive income.

(ii) Foreign operations

The assets and liabilities of foreign operations, including goodwill and fair value adjustments arising from acquisition, are translated into the presentation currency of the Group's consolidated financial statements at the exchange rates at the reporting date. The income and expenses of foreign operations are translated into the presentation currency of the Group's consolidated financial statements at the average exchange rates for the period. All resulting exchange differences are recognized in other comprehensive income.

On the disposal of a foreign operation which involves a loss of control over a subsidiary or a loss of significant influence over an associate that includes a foreign operation, all of the exchange differences accumulated in equity in respect of that operation attributable to the shareholders of the Group are entirely reclassified to profit or loss. In the case of a partial disposal that does not result in the Group losing control over a subsidiary, the proportionate share of accumulated exchange differences is reclassified to non-controlling interests. For a partial disposal of the Group's ownership interest in an associate, the proportionate share of the accumulated exchange differences in equity is reclassified to profit or loss.

When the settlement of a monetary receivable from or payable to a foreign operation is neither planned nor likely to occur in the foreseeable future, the monetary item is, in substance, a part of net investment in that foreign operation, and the related foreign exchange gains and losses thereon are recognized as other comprehensive income.

(e) Classification of current and non-current assets and liabilities

An asset is classified as current when one of following criteria is met; all other assets are classified as non-current assets.

(i) It is expected to be realized, or sold or consumed in the normal operating cycle;
(ii) It is held primarily for the purpose of trading;
(iii) It is expected to be realized within twelve months after the and of the reporting period ("the reporting date"); or
(iv) The asset is cash or a cash equivalent unless the asset is restricted from being exchanged or used to settle a liability for at least twelve months after the reporting date.

A liability is classified as current when one of following criteria is met; all other liabilities are classified as non-current liabilities:

(i) It is expected to be settled in the normal operating cycle;
(ii) It is held primarily for the purpose of trading;
(iii) It is due to be settled within twelve months after the reporting date; or

(iv) The Group does not have an unconditional right to defer settlement of the liability for at least twelve months after the reporting date.

(f) Cash and cash equivalents

Cash consists of cash on hand, checking deposits, and demand deposits. Cash equivalents consist of short-term and highly liquid investments that are readily convertible to known amounts of cash and are subject to an insignificant risk of changes in value. Time deposits that meet the aforesaid criteria and are held for meeting short-term cash commitments instead of helding for investing and other purposes are also classified as cash equivalents.

(g) Financial instruments

Accounts receivables and debt securities issued are initially recognized when they are originated. All other financial assets and financial liabilities are initially recognized when the Group becomes a party to the contractual provisions of the instrument. A financial asset (unless it is an accounts receivable without a significant financing component) or financial liability is initially measured at fair value plus, for an item not at fair value through profit or loss (FVTPL), transaction costs that are directly attributable to its acquisition or issue. An accounts receivable without a significant financing component is initially measured at the transaction price.

(i) Financial assets

On initial recognition, financial assets are classified into the following categories: measured at amortized cost, fair value through other comprehensive income (FVOCI) and fair value through profit or loss (FVTPL). Regular way purchases or sales of financial assets are recognized or derecognized on a trade-date basis.

The Group shall reclassify all affected financial assets only when it changes its business model for managing its financial assets, in which case all affected financial assets are reclassified on the first day of the first reporting period following the change in the business model.

1) Financial assets measured at amortized cost

A financial asset is measured at amortized cost if it meets both of the following conditions and is not designated as at FVTPL:

- it is held within a business model whose objective is to hold assets to collect contractual cash flows; and

- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

These assets are subsequently measured at amortized cost, which is the amount at which the financial asset is measured at initial recognition, plus/minus, the cumulative amortization using the effective interest method, adjusted for any loss allowance. Interest income, foreign exchange gains and losses, as well as impairment, are recognized in profit or loss. Any gain or loss on derecognition is recognized in profit or loss.

2) Financial assets at fair value through other comprehensive income (Financial assets at "FVOCI" )

A debt investment is measured at FVOCI if it meets both of the following conditions and is not designated as at FVTPL:

- it is held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets; and

- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

On initial recognition of an equity investment that is not held for trading, the Group may irrevocably elect to present subsequent changes in the investment's fair value in other comprehensive income. This election is made on an instrument-by-instrument basis.

Debt investments at FVOCI are subsequently measured at fair value. Interest income calculated using the effective interest method, foreign exchange gains and losses and impairment are recognized in profit or loss. Other net gains and losses are recognized in other comprehensive income. On derecognition, gains and losses accumulated in other comprehensive income are reclassified to profit or loss.

Equity investments at FVOCI are subsequently measured at fair value. Dividends are recognized as income in profit or loss unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognized in other comprehensive income. On derecognition, gains and losses accumulated in other comprehensive income are reclassified to retained earnings instead of profit or loss.

Dividend income derived from equity investments is recognized in profit or loss on the date on which the Group's right to receive payment is established, which in the case of quoted securities is normally the ex-dividend date.

3) Financial assets at fair value through profit or loss (Financial assets at "FVTPL")

All financial assets not classified as amortized cost or FVOCI described as above are measured at FVTPL, including derivative financial assets. On initial recognition, the Group may irrevocably designate a financial asset, which meets the requirements to be measured at amortized cost or at FVOCI, as at FVTPL if doing so eliminates or significantly reduces an accounting mismatch that would otherwise arise.

These assets are subsequently measured at fair value. Net gains and losses, including any interest or dividend income, are recognized in profit or loss.

4) Assessment whether contractual cash flows are solely payments of principal and interest

For the purposes of this assessment, 'principal' is defined as the fair value of the financial assets on initial recognition. 'Interest' is defined as consideration for the time value of money and for the credit risk associated with the principal amount outstanding during a particular period of time and for other basic lending risks and costs, as well as a profit margin.

In assessing whether the contractual cash flows are solely payments of principal and interest, the Group considers the contractual terms of the instrument. This includes assessing whether the financial asset contains a contractual term that could change the timing or amount of contractual cash flows such that it would not meet this condition. In making this assessment, the Group considers:

- contingent events that would change the amount or timing of cash flows;
- terms that may adjust the contractual coupon rate, including variable rate features;
- prepayment and extension features; and
- terms that limit the Group’s claim to cash flows from specified assets (e.g. non-recourse features)

5) Impairment of financial assets

The Group recognizes loss allowances for expected credit losses on financial assets measured at amortized cost (including cash and cash equivalents, notes and accounts receivable, other receivables and other financial assets).

The Group measures loss allowances at an amount equal to lifetime expected credit loss (ECL), except for the following which are measured as 12-month ECL:

- bank balances for which credit risk (i.e. the risk of default occurring over the expected life of the financial instrument) has not increased significantly since initial recognition.

Loss allowance for accounts receivables are always measured at an amount equal to lifetime ECL.

Lifetime ECLs are the ECLs that result from all possible default events over the expected life of a financial instrument. 12-month ECLs are the portion of ECLs that result from default events that are possible within the 12 month after the reporting date (or a shorter period if the expected life of the instrument is less than 12 months).

The maximum period considered when estimating ECLs is the maximum contractual period over which the Group is exposed to credit risk.

When determining whether the credit risk of a financial asset has increased significantly since initial recognition and when estimating ECL, the Group considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes both quantitative and qualitative information and analysis based on the Group’s historical experience and informed credit assessment as well as forward-looking information.

ECLs are probability-weighted estimate of credit losses. Credit losses are measured as the present value of all cash shortfalls (i.e. the difference between the cash flows due to the Group in accordance with the contract and the cash flows that the Group expects to receive). ECLs are discounted at the effective interest rate of the financial asset.

Loss allowances for financial assets measured at amortized cost are deducted from the gross carrying amount of the assets.

The gross carrying amount of a financial asset is written off, either partially or in full, to the extent that there is no realistic prospect of recovery. The Group individually makes an assessment with respect to the timing and amount of write-off based on whether there is a reasonable expectation of recovery. The Group expects no significant recovery from the amount written off. However, financial assets that are written off could still be subject to enforcement activities in order to comply with the Group’s procedures for recovery of amounts due.

6) Derecognition of financial assets

The Group derecognizes a financial assets when the contractual rights to the cash flows from the financial assets expire, or it transfers the rights to receive the contractual cash flows in a transaction in which substantially all of the risks and rewards of ownership of the financial assets are transferred or in which the Group neither transfers nor retains substantially all of the risks and rewards of ownership and it does not retain control of the financial assets.

The Group enters into transactions whereby it transfers assets recognized in its statement of balance sheet, but retains either all or substantially all of the risks and rewards of the transferred assets. In these cases, the transferred assets are not derecognized.

(ii) Financial liabilities

1) Financial liabilities

Financial liabilities are classified as measured at amortized cost or FVTPL. A financial liability is classified as at FVTPL if it is classified as held-for-trading, it is a derivative or it is designated as such on initial recognition. Financial liabilities at FVTPL are measured at fair value and net gains and losses, including any interest expense, are recognized in profit or loss.

Other financial liabilities are subsequently measured at amortized cost using the effective interest method. Interest expense and foreign exchange gains and losses are recognized in profit or loss. Any gain or loss on derecognition is also recognized in profit or loss.

2) Derecognition of financial liabilities

The Group derecognizes a financial liability when its contractual obligation has been fulfilled or cancelled, or has expired. The Group also derecognizes a financial liability when its terms are modified and the cash flows of the modified liability are substantially different, in which case a new financial liability based on the modified terms is recognized at fair value.

The difference between the carrying amount of a financial liability derecognized and the consideration paid (including any non-cash assets transferred or liabilities assumed) is recognized in profit or loss.

3) Offsetting of financial assets and liabilities

Financial assets and liabilities are offset and the net amount presented in the statement of balance sheet when, and only when, the Group currently has a legally enforceable right to set off the amounts and it intends either to settle them on a net basis or to realize the asset and settle the liability simultaneously.

(iii) Derivative financial instruments

Derivative financial instruments such as foregin currency forward contracts are held to hedge the Group’s foreign currency exposures. Derivatives are recognized initially at fair value, and attributable transaction costs are recognized in profit or loss as incurred. Subsequent to initial recognition, derivatives are measured at fair value, and changes therein are recognized in profit or loss. If the valuation of a derivative instrument results in a positive fair value, it is classified as a financial asset; otherwise, it is classified as a financial liability.

(h) Inventories

Inventories are measured at the lower of cost and net realizable value. The cost of inventories is calculated based on the weighted-average method and includes expenditure incurred in acquiring the inventories, production or conversion costs, and other costs incurred in bringing them to the location and condition ready for sale. Fixed manufacturing overhead is allocated to finished products and work in process based on the higher of normal capacity or actual capacity; variable manufacturing overhead is allocated based on the actual capacity of machinery and equipment. Net realizable value represents the estimated selling price in the ordinary course of business, less all estimated costs of completion and necessary selling expenses.

(i) Investment in associates

Associates are those entities in which the Group has significant influence, but not control or joint venture, over the financial and operating policies.

Investments in associates are accounted for using the equity method and are recognized initially at cost, plus, any transaction costs. The carrying amount of the investment in associates includes goodwill identified on acquisition, net of any accumulated impairment losses. When necessary, the entire carrying amount of the investment (including goodwill) will be tested for impairment as a single asset by comparing its recoverable amount with its carrying amount. Any impairment loss recognized forms part of the carrying amount of the investment. Any reversal of that impairment loss is recognized to the extent that the recoverable amount of the investment subsequently increases.

The Group's financial statements include the Group's share of the profit or loss and other comprehensive income of those associates, after adjustments to align their accounting policies with those of the Group, from the date on which significant influence commences until the date on which significant influence ceases. When changes in an associate's equity are not recognized in profit or loss or other comprehensive income of the associate, and such changes do not affect the Group's ownership percentage of the associate, the Group recognizes the change in ownership interests of its associate as "capital surplus" in proportion to its ownership.

Gains and losses resulting from transactions between the Group and an associate are recognized only to the extent of unrelated Group's interests in the associate.

When the Group's share of losses in an associate equals or exceeds its interest in the associate, the recognition of further losses is discontinued. Additional losses are provided for, and a liability is recognized, only to the extent that the Group has incurred legal or constructive obligations or made payments on behalf of the associate.

When an associate issues new shares and the Group does not subscribe to the new shares in proportion to its original ownership percentage, the Group's interest in the associate's net assets will be changed. The change in the equity interest is adjusted through the capital surplus and investment accounts. If the Group's capital surplus is insufficient to offset the adjustment to investment accounts, the difference is charged as a reduction of retained earnings. If the Group's interest in an associate is reduced due to the additional subscription to the shares of associate by other investors, the proportionate amount of the gains or losses previously recognized in other comprehensive income in relation to that associate shall be reclassified to profit or loss on the same basis as would be required if the associate had directly disposed of the related assets or liabilities.

(j) Property, plant and equipment

(i) Recognition and measurement

Items of property, plant and equipment are measured at cost, which includes capitalized borrowing costs, less accumulated depreciation and accumulated impairment losses.

If significant parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate items (major components) of property, plant and equipment.

Any gain or loss on disposal of an item of property, plant and equipment is recognized in profit or loss.

(ii) Subsequent expenditure

Subsequent expenditure is capitalized only if it is probable that future economic benefits associated with the expenditure will flow to the Group.

(iii) Depreciation

Depreciation is calculated on the cost of an asset less its residual value and is recognized in profit or loss on a straight-line basis over the estimated useful lives of each component of an item of property, plant and equipment. Land is not depreciated.

The estimated useful lives for property, plant and equipment are as follows: buildings and improvements: 6 to 47 years; machinery and equipment: 2 to 11 years; and other equipment: 3 to 15 years.

Depreciation methods, useful lives, and residual values are reviewed at each reporting date, with the effect of any changes in estimate accounted for on a prospective basis.

(k) Leases

Applicable from January 1, 2019

(i) Identifying a lease

At inception of a contract, the Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. To assess whether a contract conveys the right to control the use of an identified asset, the Group assesses whether:

1) the contract involves the use of an identified asset – this may be specified explicitly or implicitly, and should be physically distinct or represent substantially all of the capacity of a physically distinct asset. If the supplier has a substantive substitution right, then the asset is not identified; and

2) the Group has the right to obtain substantially all of the economic benefits from use of the asset throughout the period of use; and

3) the Group has the right to direct the use of the asset if either:

- The Group has the right to direct the use of the asset when it has the decision-making rights that are most relevant to change how and for what purpose the asset is used; or
- In rare cases where the decision about how and for what purpose the asset is predetermined; and
  - the Group has the right to operate the asset and the providers do not have the right to vary; or
  - the Group designed the asset in a way that predetermines how and for what purpose it will be used.

(ii) As a leasee

The Group recognizes a right-of-use asset and a lease liability at the lease commencement date. The right-of-use asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs to dismantle and remove the underlying asset or to restore the underlying asset or the site on which it is located, less any lease incentives received.

The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the earlier of the end of the useful life of the right-of-use asset or the end of the lease term. In addition, the right-of-use asset is periodically reduced by impairment losses, if any, and adjusted for certain remeasurements of the lease liability.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the interest rate implicit in the lease or, if that rate cannot be reliably determined, the Group's incremental borrowing rate. Generally, the Group uses its incremental borrowing rate as the discount rate.

Lease payments included in the measurement of the lease liability comprise the following:

— fixed payments, including in-substance fixed payments;

— variable lease payments that depend on an index or a rate, initially measured using the index or rate as at the commencement date.

The lease liability is measured at amortized cost using the effective interest method. It is remeasured when:

— there is a change in future lease payments arising from the change in an index or rate; or

— there is a change of its assessment on whether it will exercise an extension or termination option; or

— there is any lease modifications in lease subject, scope of the lease or other terms.

When the lease liability is remeasured, other than lease modifications, a corresponding adjustment is made to the carrying amount of the right-of-use asset, or in profit and loss if the carrying amount of the right-of-use asset has been reduced to zero.

When the lease liability is remeasured to reflect the partial or full termination of the lease for lease modifications that decrease the scope of the lease, the Group accounts for the remeasurement of the lease liability by decreasing the carrying amount of the right-of-use asset to reflect the partial or full termination of the lease, and recognize the difference in profit or loss relating to the partial or full termination of the lease.

The Group presents right-of-use assets that do not meet the definition of investment properties, and lease liabilities as a separate line item respectively in the consolidated balance sheets.

The Group has elected not to recognize right-of-use assets and lease liabilities for short-term leases of office equipments. The Group recognizes the lease payments associated with these leases as an expense on a straight-line basis over the lease term.

Applicable before January 1, 2019

(i) The Group as lessor

Lease income from an operating lease is recognized in profit or loss on a straight-line basis over the lease term. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognized as expense over the lease term on a straight-line basis.

(ii) The Group as lessee

Payments made under an operating lease (excluding insurance and maintenance expenses) are charged to expense over the lease term on a straight-line basis.

(l) Intangible assets

The Group's intangible assets are carried at cost less accumulated amortization and accumulated impairment losses. Amortization is recognized in profit or loss using the straight-line method over the following estimated useful lives: acquired computer software: 2 to 7 years; royalties for the use of patents: 13 to 17 years.

Amortization methods, useful lives and residual values are reviewed at each reporting date and adjusted if appropriate.

(m) Impairment of non-financial assets

Non-financial assets other than inventories, deferred income tax assets, and assets arising from employee benefits are reviewed for impairment at each reporting date to determine whether there is any indication of impairment. When there exists an indication of impairment for an asset, the recoverable amount of the asset is estimated. If the recoverable amount of an individual asset cannot be determined, the Group estimates the recoverable amount of the cash-generating units ("CGU") to which the asset has been allocated.

The recoverable amount for an individual asset or a CGU is the higher of its fair value less costs to sell or its value in use. When the recoverable amount of an asset or a CGU is less than its carrying amount, the carrying amount of the asset or CGU is reduced to its recoverable amount, and an impairment loss is recognized in profit or loss immediately.

The Group assesses at each reporting date whether there is any evidence that an impairment loss recognized in prior periods for an asset other than goodwill may no longer exist or may have decreased. If so, an impairment loss recognized in prior periods for an asset other than goodwill is reversed, and the carrying amount of the asset or CGU is increased to its revised estimate of recoverable amount. The increased carrying amount shall not exceed the carrying amount (net of amortization or depreciation) that would have been determined had no impairment loss been recognized in prior years.

(n) Provisions

Provisions are recognized when the Group has a present obligation (legal or constructive) as a result of a past event, it is probable that the Group will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation.

(i) Warranties

A provision for warranties is recognized when the underlying products or services are sold. This provision reflects the historical warranty claim rate and the weighting of all possible outcomes against their associated probabilities.

(ii) Sales return and allowances provision

A provision for sales returns and allowances is recognized when the underlying products are sold. This provision is estimated based on historical sales return and allowances data.

(o) Revenue recognition

Revenue is measured based on the consideration to which the Group expects to be entitled in exchange for transferring goods to a customer. The Group recognizes revenue when it satisfies a performance obligation by transferring control of a good to a customer.

(i) Sale of goods

The Group recognizes revenue when control of the goods has been transferred to the customer, being when the goods have been delivered to the customer, and there is no unfulfilled obligation that could affect the customer's acceptance of the goods. Delivery occurs when the customer has accepted the goods in accordance with the terms of sales, the risks of obsolescence and loss have been transferred to the customer, and the Group has objective evidence that all criteria for acceptance have been satisfied.

A receivable is recognized when the goods are delivered as this is the point in time that the Group has a right to an amount of consideration that is unconditional.

(ii) Financing components

The Group does not expect that the period between the transfer of the promised goods to the customer and payment by the customer exceeds one year. As a consequence, the Group does not adjust any of the transaction prices for the time value of money.

(p) Employee benefits

(i) Defined contribution plans

Obligations for contributions to defined contribution pension plans are expensed during the year in which employees render services.

(ii) Defined benefit plans

The Group's net obligation in respect of defined benefit plans is calculated separately for each plan by estimating the amount of future benefit that employees have earned in the current and prior periods, discounting that amount and deducting the fair value of any plan assets.The discount rate for calculating the present value of the defined benefit obligation refers to the interest rate of high-quality government bonds that are denominated in the currency in which the benefits will be paid, and that have terms to maturity approximating the term of the related pension obligation. The defined benefit obligation is calculated annually by qualified actuaries using the projected unit credit method.

When the benefits of a plan are improved, the expense related to the increased obligations resulting from the services rendered by employees in the past years are recognized in profit or loss immediately.

The remeasurements of the net defined benefit liability (asset) comprise (i) actuarial gains and losses; (ii) return on plan assets, excluding amounts included in net interest on the net defined benefit liability (asset); and (iii) any change in the effect of the asset ceiling, excluding amounts included in net interest on the net defined benefit liability (asset). The remeasurements of the net defined benefit liabilities (asset) are recognized in other comprehensive income and then transferred to retained earnings.

The Group recognizes gains or losses on the curtailment or settlement of a defined benefit plan when the curtailment or settlement occurs. The gain or loss on curtailment or settlement comprises any resulting change in the fair value of plan assets and any change in the present value of the defined benefit obligation.

(iii) Short-term employee benefits

Short-term employee benefit obligations are measured on an undiscounted basis and are expensed during the period in which employees render services. A liability is recognized for the amount expected to be paid under short-term cash bonus or profit-sharing plans if the Group has a present legal or constructive obligation to make such payments as a result of past service provided by the employees, and the obligation can be estimated reliably.

(q) Income taxes

Income taxes comprise current taxes and deferred taxes. Current and deferred taxes are recognized in profit or loss unless they relate to items recognized directly in equity or other comprehensive income.

Current taxes comprise the expected tax payables or receivables on the taxable profits (losses) for the year and any adjustment to the tax payable or receivable in respect of previous years. The amount of current tax payables or receivables are the best estimate of the tax amount expected to be paid or received that reflects uncertainty related to income taxes, if any. It is measured using tax rates enacted or substantively enacted at the reporting date.

Deferred income taxes are recognized in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. Deferred taxes are not recognized for:

(i) Temporary differences on the initial recognition of assets or liabilities in a transaction that is not a business combination and that affects neither accounting nor taxable profit (losses) at the time of transaction;

(ii) Temporary differences related to investments in subsidiaries and associates to the extent that the Group is able to control the timing of the reversal of the temporary differences and it is probable that they will not reverse in the foreseeable future; and

(iii) Taxable temporary differences arising on the initial recognition of goodwill.

Deferred taxes are measured at tax rates that are expected to be applied to temporary differences when they reverse, using tax rates enacted or substantively enacted at the reporting date, and reflect uncertainty related to income taxes, if any.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets against current tax liabilities and when the deferred tax assets and liabilities relate to income taxes levied by the same tax authority on either the same taxable entity or different taxable entities where there is an intention to settle the balances on a net basis.

Deferred tax assets are recognized for unused tax losses, tax credits, and deductible temporary differences to the extent that it is probable that future taxable profits will be available against which they can be utilized. Deferred tax assets are reviewed at each reporting date and reduced to the extent that it is no longer probable that the related tax benefit will be realized; such reductions are reversed when the probability of future taxable profits improves.

(r) Earnings per share (“EPS”)

The basic and diluted EPS attributable to shareholders of the Company are disclosed in the consolidated financial statements. Basic EPS is calculated by dividing net income attributable to shareholders of the Company by the weighted-average number of common shares outstanding during the year. Ddiluted EPS is calculated as the net income attributable to shareholders of the Company divided by the weighted-average number of common shares outstanding during the year after adjustment for the effects of all potentially dilutive common shares such as employee compensation.

(s) Operating segments

An operating segment is a component of the Group that engages in business activities from which it may earn revenues and incur expenses (including revenues and expenses relating to transactions with other components of the Group). Operating results of the operating segment are regularly reviewed by the Group’s chief operating decision maker to make decisions on the allocation of resources to the segment and to assess its performance for which discrete financial information is available.

**5. Critical accounting judgments and key sources of estimation uncertainty**

The preparation of the consolidated financial statements in conformity with the Regulations and Taiwan-IFRSs requires management to make judgments, estimates, and assumptions that affect the application of the accounting policies and the reported amount of assets, liabilities, income and expenses. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimates are revised and the future periods affected.

Information about assumptions and estimation uncertainties that have a significant risk of resulting in a material adjustment within the next financial year is as follows:

Inventories are measured at the lower of cost or net realizable value. The Group estimates the net realizable value of inventory, taking into account obsolescence and unmarketable items at the reporting date, and then writes down the cost of inventories to net realizable value. The net realizable value of the inventory is mainly determined based on assumptions of future demand within a specific time horizon, which could result in significant adjustments. Refer to note 6(f) for more details of the valuation of inventories.

**6. Significant account disclosures**

(a) Cash and cash equivalents

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Cash on hand | $ 61 | 98 |
| Demand deposits | 506,852 | 739,181 |
| Time deposits with original maturities less than three months | 189,584 | 2,282 |
| | **$ 696,497** | **741,561** |

As of December 31, 2019 and 2018, the time deposits with original maturities of more than three months amounted to $409,700 and $ 0, respectively, which were classified as other financial assets－current.

(b) Financial assets and liabilities at fair value through profit or loss－current

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Financial assets mandatorily at fair value through profit or loss－current: | | |
| Foreign currency forward contracts | $ 77 | 454 |
| Open-ended mutual funds | 139,527 | - |
| | **$ 139,604** | **454** |

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Financial liabilities held for trading－current: | | |
| Foreign currency forward contracts | **$ (124)** | **(289)** |

Refer to note 6(u) for the detail of the changes in fair value recognized in profit or loss.

The Group entered into derivative contracts to manage foreign currency exchange risk resulting from its operating activities. As of December 31, 2019, and 2018, the derivative financial instruments that did not conform to the criteria for hedge accounting consisted of the following:

| | December 31, 2019 | | | | |
|---|---|---|---|---|---|
| | Contract amount (in thousands) | | Fair value | Currency (Sell / Buy) | Maturity period |
| Financial assets－foreign currency forward contracts | JPY | 18,200 | 46 | JPY / TWD | 2020/01/30 |
| | CNY | 6,010 | 31 | CNY / TWD | 2020/01/30～2020/02/27 |
| | | | $ 77 | | |

| | December 31, 2018 | | | | |
|---|---|---|---|---|---|
| | Contract amount (in thousands) | | Fair value | Currency (Sell / Buy) | Maturity period |
| Financial assets－foreign currency forward contracts | USD | 6,500 | $ 454 | USD / TWD | 2019/01/04～2019/01/25 |

| | December 31, 2019 | | | | |
|---|---|---|---|---|---|
| | Contract amount (in thousands) | | Fair value | Currency (Sell / Buy) | Maturity period |
| Financial liabilities－foreign currency forward contracts | JPY | 23,500 | (38) | JPY / TWD | 2020/01/30～2020/02/27 |
| | CNY | 4,260 | (86) | CNY / TWD | 2020/01/30～2020/02/27 |
| | | | $ (124) | | |

| | December 31, 2018 | | | | |
|---|---|---|---|---|---|
| | Contract amount (in thousands) | | Fair value | Currency (Sell / Buy) | Maturity period |
| Financial liabilities－foreign currency forward contracts | JPY | 48,200 | (246) | JPY / TWD | 2019/01/25 |
| | USD | 1,500 | (43) | USD / TWD | 2019/01/04～2019/01/11 |
| | | | $ (289) | | |

(c) Financial assets at fair value through other comprehensive income－non-current

| | | December 31, 2019 | December 31, 2018 |
|---|---|---|---|
| Equity investments at fair value through other comprehensive income: | | | |
| Domestic unlisted stocks | $ | 41,748 | 44,520 |
| Foreign unlisted stocks | | 246 | 417 |
| | $ | **41,994** | **44,937** |

The Group designated the abovementioned investments as at fair value through other comprehensive income because these equity investments represent those investments that the Group intends to hold for long-term strategic purposes.

No strategic investments were disposed for the years ended December 31, 2019 and 2018, and there were no transfers of any cumulative gain or loss within equity relating to these investments.

(d) Notes and accounts receivable

| | | December 31, 2019 | December 31, 2018 |
|---|---|---|---|
| Notes and accounts receivable | $ | 928,793 | 1,178,376 |
| Accounts receivable from related parties | | 532 | 1,039 |
| | | 929,325 | 1,179,415 |
| Less: loss allowance | | (25,152) | (4,270) |
| | $ | **904,173** | **1,175,145** |

Aside from recognizing impairment loss for credit-impaired accounts receivable, the Group applies the simplified approach to provide for its expected credit losses, i.e. the use of lifetime expected loss provision for all receivables (including related parties), as well as incorporated forward looking information. The loss allowance provision were determined as follows:

| | December 31, 2019 | | | |
|---|---|---|---|---|
| | | Gross carrying amount | Weighted-average loss rate | Loss allowance provision |
| Current | $ | 796,531 | 0.058% | 464 |
| Past due 1-90 days | | 110,248 | 1.944% | 2,143 |
| Past due 91-180 days | | 4 | 75% | 3 |
| Past due over 181 days | | 2,518 | 100% | 2,518 |
| | $ | **909,301** | | **5,128** |

| | December 31, 2018 | | |
|---|---|---|---|
| | **Gross carrying amount** | **Weighted-average loss rate** | **Loss allowance provision** |
| Current | $ 1,009,859 | 0.0565% | 570 |
| Past due 1-90 days | 166,239 | 0.2320% | 386 |
| Past due 91-180 days | 5 | 37.50% | 2 |
| Past due over 181 days | 3,312 | 100% | 3,312 |
| | **$ 1,179,415** | | **4,270** |

In addition, as of December 31, 2019, and 2018, the Group recognized loss allowances amounting to $20,024, and $0, respectively, for notes and accounts receivable with gross carrying amounts of $20,024, and $0, respectively, as there was objective evidence indicating that, under reasonable expectation, they would not be recovered in total.

Movements of the loss allowance for notes and accounts receivable (including related parties) were as follows:

| | **2019** | **2018** |
|---|---|---|
| Balance at January 1 (per IAS 39) | $ 4,270 | 2,679 |
| Adjustment on initial application of IFRS 9 | - | 77 |
| Balance at January 1 (per IFRS 9) | 4,270 | 2,756 |
| Impairment loss recognized | 21,592 | 1,514 |
| Write-off | (710) | - |
| Balance at December 31 | **$ 25,152** | **4,270** |

(e) Other receivables

| | **December 31, 2019** | **December 31, 2018** |
|---|---|---|
| Other receivables | **$ 50,459** | **43,760** |

There is no loss allowance provision for other receivables on December 31, 2019 and 2018 after the assessment.

(f) Inventories

| | **December 31, 2019** | **December 31, 2018** |
|---|---|---|
| Raw materials | $ 424,968 | 500,256 |
| Work in process | 44,603 | 101,616 |
| Finished goods | 455,850 | 577,704 |
| Inventories in transit | 10,362 | 14,309 |
| | **$ 935,783** | **1,193,885** |

For the years ended December 31, 2019 and 2018, the amounts of inventories recognized as cost of revenue were as follows:

| | 2019 | 2018 |
|---|---|---|
| Cost of inventories sold | $ 6,082,389 | 8,088,292 |
| Write-downs of inventories | 3,189 | 44,037 |
| | **$ 6,085,578** | **8,132,329** |

The above write-downs of inventories to net realizable value were included in cost of revenue.

(g) Investments accounted for using equity method

(i) Investments in associates

| | December 31, 2019 | | December 31, 2018 | |
|---|---|---|---|---|
| **Name of Associates** | **Percentage of voting rights** | **Carrying amount** | **Percentage of voting rights** | **Carrying amount** |
| JoiiUp Technology Inc. | 16.15 % | $ - | 16.15 % | **884** |

Aggregate financial information of associates that were not individually material was summarized as follows. The financial information was included in the Group's consolidated financial statement.

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| The aggregate carrying amount of associates that were not individually material | **$ -** | **884** |

| | 2019 | 2018 |
|---|---|---|
| Attributable to the Group: | | |
| Net income | $ (884) | (2,522) |
| Other comprehensive income | - | - |
| Total comprehensive income | **$ (884)** | **(2,522)** |

(h) Property, plant and equipment

| | Land | Buildings | Machinery and equipment | Other equipment | Equipment to be inspected and construction in progress | Total |
|---|---|---|---|---|---|---|
| Cost: | | | | | | |
| Balance at January 1, 2019 | $ 556,498 | 277,083 | 175,956 | 101,466 | 10,547 | 1,121,550 |
| Additions | - | 8,894 | 4,762 | 5,216 | 8,348 | 27,220 |
| Disposals | - | - | (2,475) | (1,295) | - | (3,770) |
| Other reclassification and effect of exchange rate changes (Note) | - | 13,162 | 4,779 | (164) | (18,180) | (403) |
| Balance at December 31, 2019 | **$ 556,498** | **299,139** | **183,022** | **105,223** | **715** | **1,144,597** |
| Balance at January 1, 2018 | $ 556,498 | 275,836 | 176,566 | 97,027 | 841 | 1,106,768 |
| Additions | - | 1,236 | 7,152 | 4,863 | 12,298 | 25,549 |
| Disposals | - | - | (9,243) | (597) | - | (9,840) |
| Other reclassification and effect of exchange rate changes (Note) | - | 11 | 1,481 | 173 | (2,592) | (927) |
| Balance at December 31, 2018 | **$ 556,498** | **277,083** | **175,956** | **101,466** | **10,547** | **1,121,550** |
| Accumulated depreciation and impairment loss: | | | | | | |
| Balance at January 1, 2019 | $ - | 34,632 | 123,010 | 76,450 | - | 234,092 |
| Depreciation | - | 8,368 | 18,956 | 10,774 | - | 38,098 |
| Disposals | - | - | (2,475) | (879) | - | (3,354) |
| Other reclassification and effect of exchange rate changes | - | (2) | (12) | (285) | - | (299) |
| Balance at December 31, 2019 | **$ -** | **42,998** | **139,479** | **86,060** | **-** | **268,537** |
| Balance at January 1, 2018 | $ - | 27,491 | 114,561 | 65,329 | - | 207,381 |
| Depreciation | - | 7,141 | 17,551 | 11,582 | - | 36,274 |
| Disposals | - | - | (9,243) | (597) | - | (9,840) |
| Impairment loss | - | - | 127 | - | - | 127 |
| Other reclassification and effect of exchange rate changes (Note) | - | - | 14 | 136 | - | 150 |
| Balance at December 31, 2018 | **$ -** | **34,632** | **123,010** | **76,450** | **-** | **234,092** |
| Carrying amount: | | | | | | |
| Balance at December 31, 2019 | **$ 556,498** | **256,141** | **43,543** | **19,163** | **715** | **876,060** |
| Balance at December 31, 2018 | **$ 556,498** | **242,451** | **52,946** | **25,016** | **10,547** | **887,458** |

Note: reclassified from property, plant and equipment to other non-current assets.

(i) Right-of-use assets

| | | December 31, 2019 |
|---|---|---|
| Carrying amount: | | |
| Buildings | $ | 26,862 |
| Other equipments | | 8,248 |
| | $ | **35,110** |

| | | 2019 |
|---|---|---|
| Additions | $ | **18,205** |
| Depreciation | | |
| Buildings | $ | 14,240 |
| Other equipments | | 8,384 |
| | $ | **22,624** |

The Group leases office and other equipments under an operating lease for the year ended December 31, 2018, please refer to note 6(n).

(j) Intangible assets

| | | Computer software | Royalties for the use of patents | Total |
|---|---|---|---|---|
| Costs: | | | | |
| Balance at January 1, 2019 | $ | 104,024 | 4,182 | 108,206 |
| Additions | | 4,141 | - | 4,141 |
| Other reclassification and effect of exchange rate changes (Note) | | 3,944 | (78) | 3,866 |
| Balance at December 31, 2019 | $ | **112,109** | **4,104** | **116,213** |
| Balance at January 1, 2018 | $ | 52,634 | 4,104 | 56,738 |
| Additions | | 45,313 | 79 | 45,392 |
| Other reclassification and effect of exchange rate changes (Note) | | 6,077 | (1) | 6,076 |
| Balance at December 31, 2018 | $ | **104,024** | **4,182** | **108,206** |

| | Computer software | Royalties for the use of patents | Total |
|---|---|---|---|
| Accumulated amortization: | | | |
| Balance at January 1, 2019 | $ 41,208 | 718 | 41,926 |
| Amortization | 11,787 | 222 | 12,009 |
| Balance at December 31, 2019 | **$ 52,995** | **940** | **53,935** |
| Balance at January 1, 2018 | $ 31,879 | 496 | 32,375 |
| Amortization | 9,322 | 222 | 9,544 |
| Other reclassification and effect of exchange rate changes (Note) | 7 | - | 7 |
| Balance at December 31, 2018 | **$ 41,208** | **718** | **41,926** |
| Carrying amount: | | | |
| Balance at December 31, 2019 | **$ 59,114** | **3,164** | **62,278** |
| Balance at December 31, 2018 | **$ 62,816** | **3,464** | **66,280** |

Note: reclassified from other non-current assets to intangible assets.

The amortization of intangible assets is included in the following line items of the consolidated statement of comprehensive income:

| | 2019 | 2018 |
|---|---|---|
| Cost of revenue | **$ 2,175** | **2,211** |
| Operating expenses | **$ 9,834** | **7,333** |

(k) Short-term borrowings

The details of short-term borrowings were as follows:

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Unsecured bank loans | **$ 74,950** | **138,218** |
| Unused credit facilities | **$ 2,299,450** | **2,491,803** |
| Interest rate interval | **2.43%** | **3.08%** |

(l) Lease liabilities

| | December 31, 2019 |
|---|---|
| Current | $ 15,674 |
| Non-current | $ 19,229 |

For the maturity analysis, please refer to note 6(w).

The amounts recognized in profit or loss were as follows:

| | 2019 |
|---|---|
| Interest on lease liabilities | $ 823 |
| Expenses relating to short-term leases | $ 2,798 |

The amounts recognized in the statement of cash flows for the Group was as follows:

| | 2019 |
|---|---|
| Total cash outflow for leases | $ 26,278 |

(i) Real estate leases

The Group leases buildings for its office. The leases of office typically run for a period of two to seven years.

(ii) Other leases

The Group leases office and transportation equipments, with lease terms of one to five years. In addition, the Group leases some office equipments with contract terms within one year. These leases are short-term and the Group has elected not to recognize right-of-use assets and lease liabilities for these leases.

(m) Provisions

| | | Warranties | Sales returns and allowances | Total |
|---|---|---|---|---|
| Balance at January 1, 2019 | $ | 7,353 | 5,272 | 12,625 |
| Provisions made | | 416 | 52,642 | 53,058 |
| Amount utilized | | (1,474) | (52,524) | (53,998) |
| Balance at December 31, 2019 | **$** | **6,295** | **5,390** | **11,685** |
| Balance at January 1, 2018 | $ | 9,965 | 5,730 | 15,695 |
| Provisions made | | 252 | 49,322 | 49,574 |
| Amount utilized | | (2,864) | (49,780) | (52,644) |
| Balance at December 31, 2018 | **$** | **7,353** | **5,272** | **12,625** |

(i) Warranties

The provision for warranties is made based on the number of units sold currently under warranty, historical rates of warranty claim on those units, and cost per claim to satisfy the warranty obligation. The Group reviews the estimation basis on an ongoing basis and revises it when appropriate.

(ii) Sales returns and allowances

Expected sales returns and allowances are estimated based on historical experience.

(n) Operating lease

(i) Lessee

Future minimum lease payments under operating leases is as follow:

| | | December 31, 2018 |
|---|---|---|
| Within 1 year | $ | 19,005 |
| 1 to 5 years | | 24,627 |
| | **$** | **43,632** |

The Group leases its offices and warehouses under operating leases. The leases typically run for a period of 1 to 3 years. Lease payments are paid based on the terms of the lease contracts.

In 2018, the rental expense of operating leases, amounted to $26,742 was recognized in cost of revenue and operating expenses.

(ii) Lessor

The Group leased its offices to others under operating leases. In 2018, the rental income amounted to $3,156.

(o) Employee benefits

(i) Defined benefit plans

The reconciliation between the present value of defined benefit obligations and the net defined benefit liabilities for defined benefit plans were as follows:

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Present value of defined benefit obligations | $ 64,056 | 60,759 |
| Fair value of plan assets | (36,188) | (35,189) |
| | 27,868 | 25,570 |
| Effects of the asset ceiling | - | - |
| Net defined benefit liabilities | **$ 27,868** | **25,570** |

Except for the Company, there is not any other entity within the Group which has defined benefit plans. The Company makes defined benefit plan contributions to the pension fund account at Bank of Taiwan that provides pension benefits for its employees upon retirement. The Company also established pension funds in accordance with the Regulations Governing the Management, Investment, and Distribution of the Employees' Retirement Fund Established by a Profit-seeking Enterprise, which are deposited monthly in the designated financial institutions. The plans entitle a retired employee to receive a payment based on years of service and average salary for the six months prior to the employee's retirement.

1) Composition of plan assets

In accordance with the requirements of the Labor Standards Law, the Company's pension fund account at Bank of Taiwan is managed and administered by the Bureau of Labor Funds of the Ministry of Labor (the Bureau of Labor Funds). According to the Regulations for Revenues, Expenditures, Safeguard and Utilization of the Labor Retirement Fund, with regard to the utilization of the Fund, minimum earnings shall be no less than the earnings attainable from two-year time deposits, with interest rates offered by local banks.

As of December 31, 2019 and 2018, the Group's labor pension fund account balance at Bank of Taiwan amounted to $36,188 and $35,189, respectively. Please refer to the website of the Bureau of Labor Funds for information on the labor pension fund assets including the asset portfolio and yield of the fund.

2) Movements in present value of defined benefit obligations

The movements in present value of defined benefit obligations of the Group were as follows:

| | 2019 | 2018 |
|---|---|---|
| Defined benefit obligations at January 1 | $ 60,759 | 56,350 |
| Current service costs and interest expense | 916 | 915 |
| Remeasurement on the net defined benefit liabilities (assets) | | |
| －Actuarial loss arising from changes in financial assumptions | 2,392 | 2,383 |
| －Actuarial loss arising from experience adjustments | 1,024 | 1,643 |
| Benefits paid by the plan | (1,035) | (532) |
| Defined benefit obligations at December 31 | **$ 64,056** | **60,759** |

3) Movements of fair value of plan assets

The movements of the fair value of plan assets of the Group were as follows:

| | 2019 | 2018 |
|---|---|---|
| Fair value of plan assets at January 1 | $ 35,189 | 33,991 |
| Interest income | 486 | 554 |
| Remeasurement on the net defined benefit liabilities (assets) | | |
| －Return on plan assets (excluding current interest expense) | 1,124 | 819 |
| Contributions by the employer | 424 | 357 |
| Benefits paid by the plan | (1,035) | (532) |
| Fair value of plan assets at December 31 | **$ 36,188** | **35,189** |

4) Changes in the effect of the asset ceiling

There was no effect of the asset ceiling.

5) Expenses recognized in profit or loss

The expenses recognized in profit or loss were as follows:

| | 2019 | 2018 |
|---|---|---|
| Current service costs | $ 81 | - |
| Net interest expense on the net defined benefit liability | 349 | 361 |
| | **$ 430** | **361** |
| Cost of revenue | $ 139 | 107 |
| Selling expenses | 135 | 118 |
| Administrative expenses | 91 | 85 |
| Research and development expenses | 65 | 51 |
| | **$ 430** | **361** |

6) Remeasurement of the net defined benefit liabilities recognized in other comprehensive income

The remeasurement of the net defined benefit liabilities recognized in other comprehensive income were as follows:

| | 2019 | 2018 |
|---|---|---|
| Cumulative amount at January 1 | $ 27,344 | 24,137 |
| Recognized during the period | 2,292 | 3,207 |
| Cumulative amount at December 31 | **$ 29,636** | **27,344** |

7) Actuarial assumptions

The principal assumptions of the actuarial valuation were as follows:

| | 2019 | 2018 |
|---|---|---|
| Discount rate | 1.125 % | 1.375 % |
| Future salary increases rate | 3.000 % | 3.000 % |

The Group expects to make contribution of $430 to the defined benefit plans in the year following December 31, 2019.

The weighted average duration of the defined benefit plans is 16.67 years.

8) Sensitivity analysis

When calculating the present value of the defined benefit obligations, the Group uses judgments and estimations to determine the actuarial assumptions for each measurement date, including discount rates, employee turnover rates and future salary changes. Any changes in the actuarial assumptions may significantly impact the amount of the defined benefit obligations.

The following table summarizes the impact of a change in the assumptions on the present value of the defined benefit obligation on December 31, 2019 and 2018.

| | **Increase (decrease) in present value of defined benefit obligations** | |
|---|---|---|
| | **0.25% Increase** | **0.25% Decrease** |
| December 31, 2019 | | |
| Discount rate | (2,392) | 2,498 |
| Future salary change rate | 2,424 | (2,319) |
| December 31, 2018 | | |
| Discount rate | (2,383) | 2,486 |
| Future salary change rate | 2,409 | (2,318) |

Each sensitivity analysis considers the change in one assumption at a time, leaving the other assumptions unchanged. This approach shows the isolated effect of changing one individual assumption but does not take into account that some assumptions are related. The method used to carry out the sensitivity analysis is the same as the calculation of the net defined benefit liabilities recognized in the balance sheets.

In 2019, the method and assumptions used to carry out the sensitivity analysis was the same as in the prior year.

(ii) Defined contribution plans

The Company contributes monthly an amount equal to 6% of each employee’s monthly wages to the employee’s individual pension fund account at the Bureau of Labor Insurance in accordance with the provisions of the Labor Pension Act. Foreign subsidiaries make contributions in compliance with their respective local regulations. Under this defined contribution plan, the Group has no legal or constructive obligation to pay additional amounts after contributing a fixed amount.

For the years ended December 31, 2019 and 2018, the Group recognized pension expenses of $24,085 and $23,120, respectively, in relation to the defined contribution plans.

(p) Income taxes

According to the amendments to the "Income Tax Act” enacted by the office of the President of the Republic of China (Taiwan) on February 7, 2018, the corporate income tax rate was adjusted from 17% to 20% starting from 2018.

(i) The components of income tax expense were as follows:

| | 2019 | 2018 |
|---|---|---|
| Current income tax expense | | |
| Current period | $ 101,379 | 106,495 |
| Adjustments for prior years | 2,855 | (3,985) |
| | 104,234 | 102,510 |
| Deferred income tax benefit (expense) | | |
| Origination and reversal of temporary differences | (1,963) | (11,595) |
| Adjustments in tax rate | - | (11,239) |
| | (1,963) | (22,834) |
| Income tax expense | **$ 102,271** | **79,676** |

The components of income tax benefit recognized in other comprehensive income were as follows:

| | 2019 | 2018 |
|---|---|---|
| Items that will not be reclassified subsequently to profit or loss: | | |
| Remeasurement of defined benefit plans | **$ 458** | **641** |

Reconciliation of income tax expense and income before income tax were as follows:

| | 2019 | 2018 |
|---|---|---|
| Income before income tax | **$ 478,900** | **438,506** |
| Income tax using the Company's statutory tax rate | $ 95,780 | 87,701 |
| Effect of different tax rates in foreign jurisdictions | 9,119 | 5,028 |
| Adjustments in tax rate | - | (11,239) |
| Investment tax credits | (4,233) | (3,500) |
| Changes in unrecognized temporary differences | (2,496) | (8,339) |
| Prior-year adjustments | 2,855 | (3,985) |
| Surtax on undistributed earnings | 2,625 | 8,419 |
| Others | (1,379) | 5,591 |
| | **$ 102,271** | **79,676** |

(ii) Deferred income tax assets and liabilities

1) Unrecognized deferred income tax assets and liabilities

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Unrecognized deferred income tax assets: | | |
| Aggregate deductible temporary differences associated with investments in subsidiaries | $ 22,301 | 22,801 |
| Deductible temporary differences | 788 | 788 |
| | **$ 23,089** | **23,589** |

| | | December 31, 2019 | December 31, 2018 |
|---|---|---|---|
| Unrecognized deferred income tax liabilities: | | | |
| Aggregate taxable temporary differences associated with investments in subsidiaries | $ | 49,613 | 47,617 |

As the Group is able to control the timing of the reversal of the temporary differences associated with investments in its subsidiaries as of December 31, 2019 and 2018, and Management believes that it is probable that the temporary differences will not reverse in the foreseeable future, such temporary differences are not recognized as deferred income tax assets and liabilities.

2) Recognized deferred income tax assets and liabilities

Changes in the amount of deferred income tax assets and liabilities were as follows:

Deferred income tax assets:

| | | Defined benefit plans | Provision for inventory obsolescence | Warranty provision | Unrealized impairment loss on financial assets | Allowance for doubtful receivables | Others | Total |
|---|---|---|---|---|---|---|---|---|
| **Balance at January 1, 2019** | $ | 6,421 | 56,724 | 1,471 | 10,000 | 854 | 17,361 | 92,831 |
| Recognized in profit or loss | | (1,305) | (72) | (212) | - | 4,362 | 66 | 2,839 |
| Recognized in other comprehensive income | | 458 | - | - | - | - | - | 458 |
| **Balance at December 31, 2019** | $ | 5,574 | 56,652 | 1,259 | 10,000 | 5,216 | 17,427 | 96,128 |
| **Balance at January 1, 2018** | $ | 4,913 | 40,229 | 1,694 | 8,500 | 455 | 13,529 | 69,320 |
| Recognized in profit or loss | | - | 9,464 | (522) | - | 319 | 2,217 | 11,478 |
| Recognized in other comprehensive income | | 641 | - | - | - | - | - | 641 |
| Adjustments in tax rate | | 867 | 7,031 | 299 | 1,500 | 80 | 1,615 | 11,392 |
| **Balance at December 31, 2018** | $ | 6,421 | 56,724 | 1,471 | 10,000 | 854 | 17,361 | 92,831 |

Deferred income tax liabilities:

| | | Others |
|---|---|---|
| **Balance at January 1, 2019** | $ | 903 |
| Recognized in profit or loss | | 876 |
| **Balance at December 31, 2019** | $ | 1,779 |
| **Balance at January 1, 2018** | $ | 867 |
| Recognized in profit or loss | | (117) |
| Adjustments in tax rate | | 153 |
| **Balance at December 31, 2018** | $ | 903 |

(iii) The Company's income tax returns for the years through 2016 have been examined and approved by the R.O.C. income tax authorities.

(q) Capital and other equity

(i) Common stock

As of December 31, 2019, and 2018, the Company's authorized shares of common stock consisted of 200,000 thousand shares, of which 100,898 thousand shares were issued and outstanding. The par value of the Company's common stock is $10 (dollars) per share. The Company has reserved 15,000 thousand shares for the exercise of employee stock options.

In order to enrich the necessary working capital in response to develop long-term operations, the Company's temporary shareholders' meeting held on December 29, 2014 resolved to raise capital through private placement. The effective date of the capital increase was January 21, 2015, and the issuance of common stock has been registered with the government authorities on January 28, 2015. Details are summarized below:

1) Shares issued: 15,000 thousand shares of common stock

2) Issue price: $25.38 (dollars) per share

3) Total proceeds received by the Company: $380,700

4) Investor of the private placement: Phison Electronics Corporation

5) Rights and obligations: All the rights and obligations of shares of common stock through the private placement (the "Private Placement Shares") shall be the same as those of shares of common stock issued and outstanding. However, except for selling to specific investors defined in Article 43-8 of the Securities and Exchange Act, the Private Placement Shares cannot be resold during a three-year period from delivery date. After three years from delivery date, according to the Securities and Exchange Act, and Directions for Public Companies Conducting Private Placements of Securities, the Company shall obtain a letter issued by Taiwan Stock Exchange Corporation ("TWSE") acknowledging that the Private Placement Shares have met the standards for TWSE listing before it may file with FSC for retroactive handling of public issuance procedures. Thereafter, the Company can apply for listing in TWSE of Private Placement Shares.

6) Others: The Company recognized capital surplus of $230,700, resulting from the issuance price of Private Placement Shares in excess of common stock's par value.

On May 8, 2018, the public issuance of abovementioned Private Placement Shares was approved by and registered with FSC.

(ii) Capital surplus

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Paid-in capital in excess of par value | $ 331,707 | 331,707 |
| Employee stock options | 12,901 | 12,901 |
| Treasury stock transactions | 3,781 | 3,781 |
| Changes in equity of associates accounted for using equity method | 11,521 | 11,521 |
| | **$ 359,910** | **359,910** |

Pursuant to the Company Act, any realized capital surplus is initially used to cover an accumulated deficit, and the balance, if any, could be transferred to common stock as stock dividends based on the original shareholding ratio or distributed as cash dividends based on a resolution approved by the shareholders. Realized capital surplus includes the premium derived from the issuance of shares of stock in excess of par value and donations from shareholders received by the Company. In accordance with the Regulations Governing the Offering and Issuance of Securities by Securities Issuers, distribution of stock dividends from capital surplus in any one year shall not exceed 10% of paid-in capital.

(iii) Retained earnings

1) Legal reserve

According to the Company Act, the Company must retain 10% of its annual income as a legal reserve until such retention equals the amount of paid-in capital. If a company has no accumulated deficit, it may, pursuant to a resolution approved by the shareholders, distribute its legal reserve to its shareholders by issuing new shares or by distributing cash for the portion in excess of 25% of the paid-in capital.

2) Special reserve

In accordance with Ruling No. 1010012865 issued by the FSC on April 6, 2012, a special reserve equal to the total amount of items that were accounted for as deductions from shareholders' equity was set aside from current and prior-year earnings. This special reserve shall revert to the retained earnings and be made available for distribution when the items that are accounted for as deductions from shareholders' equity are reversed in subsequent periods.

3) Earnings distribution

The Company's Articles of Incorporation stipulate that at least 10% of annual net income, after deducting accumulated deficit, if any, must be retained as legal reserve until such retention equals the amount of paid in capital. In addition, a special reserve shall be set aside in accordance with applicable laws and regulations. The remaining balance, together with the unappropriated earnings from the previous years, after retaining a certain portion of it for business considerations, can be distributed as dividends to shareholders. Except for the distribution of capital surplus and legal reserve in accordance with applicable laws and regulations, the Company cannot distribute any earnings when there are no retained earnings.

Since the Company operates in an industry experiencing rapid change and development, earnings are distributed in consideration of the current year's earnings, the overall economic environment, related laws and decrees, as well as the Company's long term development and stability in its financial position. The Company has adopted a balance dividend policy, in which a cash dividend comprises at least 10% of the total dividend distribution.

The appropriation of 2018 and 2017 earnings were approved by the shareholders at the meeting on May 30, 2019 and May 30, 2018, respectively. The resolved appropriation of the dividend per share were as follows:

| | 2018 | | 2017 | |
|---|---|---|---|---|
| | **Dividends per share (in dollars)** | **Amount** | **Dividends per share (in dollars)** | **Amount** |
| Dividends per share: | | | | |
| Cash dividends | $ 2.50 | **252,245** | 2.60 | **262,334** |

(iv) Other equity items (net after tax)

1) Foreign currency translation differences

| | 2019 | 2018 |
|---|---|---|
| Balance at January 1 | $ (41,061) | (49,321) |
| Foreign exchange differences arising from translation of foreign operations | (8,098) | 8,260 |
| Balance at December 31 | **$ (49,159)** | **(41,061)** |

2) Unrealized gains (losses) on financial assets measured at fair value through other comprehensive income

| | 2019 | 2018 |
|---|---|---|
| Balance at January 1 (per IAS 39) | $ (26,479) | - |
| Adjustment on initial application of IFRS 9 | - | (37,614) |
| Balance at January 1 (per IFRS 9) | (26,479) | (37,614) |
| Unrealized gains (losses) from investments in equity instruments measured at fair value through other comprehensive income | (2,941) | 11,135 |
| Balance at December 31 | **$ (29,420)** | **(26,479)** |

(v) Non-controlling interests

| | 2019 | 2018 |
|---|---|---|
| Balance at January 1 | $ 173 | 185 |
| Equity attributable to non-controlling interest | | |
| Net loss | (13) | (9) |
| Exchange differences on translation of foreign operations | (8) | (3) |
| Unrealized losses from investments in equity instruments measured at fair value through other comprehensive income | (2) | - |
| Balance at December 31 | **$ 150** | **173** |

(r) Earnings per share (“EPS”)

(i) Basic earnings per share

| | 2019 | 2018 |
|---|---|---|
| Net income attributable to shareholders of the Company | **$ 376,642** | **358,839** |
| Weighted-average number of ordinary shares outstanding (in thousands) | **100,898** | **100,898** |
| Basic earnings per share (in dollars) | **$ 3.73** | **3.56** |

(ii) Diluted earnings per share

| | 2019 | 2018 |
|---|---|---|
| Net income attributable to shareholders of the Company | $ 376,642 | 358,839 |
| Weighted-average number of ordinary shares outstanding (in thousands) | 100,898 | 100,898 |
| Effect of dilutive potential common stock (in thousand): | | |
| Remuneration to employees | 1,390 | 1,771 |
| Weighted-average number of ordinary shares outstanding (including effect of dilutive potential common stock) | **102,288** | **102,669** |
| Diluted earnings per share (in dollars) | **$ 3.68** | **3.50** |

(s) Revenue from contracts with customers

(i) Disaggregation of revenue

| | 2019 | | |
|---|---|---|---|
| | Segment | | |
| | Asia | America and Europe | Total |
| Major products: | | | |
| Flash memory cards | $ 3,509,182 | 1,082,390 | 4,591,572 |
| Memory modules | 2,529,103 | 358,500 | 2,887,603 |
| Others | 6,593 | 53 | 6,646 |
| | **$ 6,044,878** | **1,440,943** | **7,485,821** |

| | 2018 | | |
|---|---|---|---|
| | Segment | | |
| | Asia | America and Europe | Total |
| Major products: | | | |
| Flash memory cards | $ 3,544,338 | 1,249,041 | 4,793,379 |
| Memory modules | 3,308,038 | 1,336,642 | 4,644,680 |
| Others | 3,484 | 75 | 3,559 |
| | **$ 6,855,860** | **2,585,758** | **9,441,618** |

(ii) Contract balances

| | December 31, 2019 | December 31, 2018 | January 1, 2018 |
|---|---|---|---|
| Notes and accounts receivable (including related parties) | $ 929,325 | 1,179,415 | 1,296,783 |
| Less: loss allowance | (25,152) | (4,270) | (2,756) |
| | **$ 904,173** | **1,175,145** | **1,294,027** |

For details on notes and accounts receivable and its loss allowance, please refer to note 6(d).

(t) Remuneration to employees, and directors and supervisors

The Company's article of incorporation requires that earnings shall first to be offset against any deficit, then, a minimum of 4% will be distributed as remuneration to its employees and no more than 1.4% to its directors. Employees who are entitled to receive the abovementioned employee remuneration, in shares or cash, include the employees of the subsidiaries of the Company who meet certain specific requirement. The Company no longer has supervisors since the reelection of directors at the shareholders' meeting on May 30, 2018. The required duties of supervisors are being fulfilled by the Audit Committee.

For the years ended December 31, 2019 and 2018, the Company estimated its remuneration to employees amounting to $49,120 and $44,047, respectively, and the remuneration to directors and supervisors amounting to $7,323 and $6,852, respectively. The abovementioned estimated amounts are calculated based on the net profits before tax of each period (excluding the remuneration to employees, and directors and supervisors), multiplied by a certain percentage of the remuneration to employees, and directors and supervisors. The estimations are recognized as operating expenses. If the actual amounts differ from the estimated amounts, the differences shall be accounted as changes in accounting estimates and recognized as profit or loss in following year.

The abovementioned estimated remuneration to employees, and directors and supervisors is the same as the amount approved by the Board of Directors and will be paid in cash. Related information is available on the Market Observation Post System website of the Taiwan Stock Exchange.

(u) Non-operating income and loss

(i) Other income

| | 2019 | 2018 |
|---|---|---|
| Interest income from bank deposits | $ 5,376 | 1,776 |
| Rental income | - | 3,156 |
| | **$ 5,376** | **4,932** |

(ii) Other gains and losses－net

| | 2019 | 2018 |
|---|---|---|
| Gain (loss) on disposal of property, plant and equipment | $ (416) | 343 |
| Foreign currency exchange loss | (9,110) | (6,993) |
| Gain (loss) on financial assets and liabilities at fair value through profit or loss | 1,131 | (2,828) |
| Impairment loss on non-financial assets | - | (127) |
| Loss from burglary | (15,953) | - |
| Gain from insurance claims | 16,784 | - |
| Others | 3,463 | 15,473 |
| | **$ (4,101)** | **5,868** |

(iii) Finance costs

| | 2019 | 2018 |
|---|---|---|
| Interest expense from bank loans | $ (4,263) | (7,655) |
| Interest expense from lease liabilities | (823) | - |
| | **$ (5,086)** | **(7,655)** |

(v) Financial instruments

(i) Categories of financial instruments

1) Financial assets

| | **December 31, 2019** | **December 31, 2018** |
|---|---|---|
| Financial assets at fair value through profit or loss | $ 139,604 | 454 |
| Financial assets at fair value through other comprehensive income | 41,994 | 44,937 |
| Financial assets measured at amortized cost: | | |
| Cash and cash equivalents | 696,497 | 741,561 |
| Notes and accounts receivable (including related parties) | 904,173 | 1,175,145 |
| Other receivables | 341 | 1,046 |
| Other financial assets (including current and non-current) | 416,595 | 7,062 |
| Subtotal | 2,017,606 | 1,924,814 |
| Total | **$ 2,199,204** | **1,970,205** |

2) Financial liabilities

| | **December 31, 2019** | **December 31, 2018** |
|---|---|---|
| Financial liabilities at fair value through profit or loss | $ 124 | 289 |
| Financial liabilities measured at amortized cost: | | |
| Short-term borrowings | 74,950 | 138,218 |
| Notes and accounts payable (including related parties) | 926,065 | 952,763 |
| Other payables | 107,339 | 157,251 |
| Lease liabilities (including current and non-current) | 34,903 | - |
| Guarantee deposits | - | 15,357 |
| Subtotal | 1,143,257 | 1,263,589 |
| Total | **$ 1,143,381** | **1,263,878** |

(ii) Fair value information

1) Financial instruments not measured at fair value

The Group considers that the carrying amounts of financial assets and financial liabilities measured at amortized cost approximate their fair values.

2) Financial instruments measured at fair value

The fair value of financial assets and liabilities at fair value through profit and loss and financial assets at fair value through other comprehensive income are measured on a recurring basis.

The table below analyzes financial instruments that are measured at fair value subsequent to initial recognition, grouped into Levels 1 to 3 based on the degree to which the fair value is observable. The different levels have been defined as follows:

a) Level 1: quoted prices (unadjusted) in active markets for identified assets or liabilities.

b) Level 2: inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (i.e., as prices) or indirectly (i.e., derived from prices).

c) Level 3: inputs for the assets or liabilities that are not based on observable market data (unobservable inputs).

| | December 31, 2019 | | | | |
|---|---|---|---|---|---|
| | | Fair Value | | | |
| | **Carrying amount** | **Level 1** | **Level 2** | **Level 3** | **Total** |
| Financial assets at fair value through profit or loss－current: | | | | | |
| Open-ended mutual fund | $ 139,527 | 139,527 | - | - | 139,527 |
| Derivatives－foreign currency forward contracts | 77 | - | 77 | - | 77 |
| | **$ 139,604** | **139,527** | **77** | **-** | **139,604** |
| Financial assets at fair value through other comprehensive income－non-current: | | | | | |
| Domestic unlisted stocks | $ 41,748 | - | - | 41,748 | 41,748 |
| Foreign unlisted stocks | 246 | - | - | 246 | 246 |
| | **$ 41,994** | **-** | **-** | **41,994** | **41,994** |
| Financial liabilities at fair value through profit or loss－current: | | | | | |
| Derivatives－foreign currency forward contracts | **$ 124** | **-** | **124** | **-** | **124** |

| | December 31, 2018 | | | | |
|---|---|---|---|---|---|
| | | Fair Value | | | |
| | **Carrying amount** | **Level 1** | **Level 2** | **Level 3** | **Total** |
| Financial assets at fair value through profit or loss－current: | | | | | |
| Derivatives－foreign currency forward contracts | **$ 454** | **-** | **454** | **-** | **454** |
| Financial assets at fair value through other comprehensive income－non-current: | | | | | |
| Domestic unlisted stocks | $ 44,520 | - | - | 44,520 | 44,520 |
| Foreign unlisted stocks | 417 | - | - | 417 | 417 |
| | **$ 44,937** | **-** | **-** | **44,937** | **44,937** |
| Financial liabilities at fair value through profit or loss－current: | | | | | |
| Derivatives－foreign currency forward contracts | **$ 289** | **-** | **289** | **-** | **289** |

(iii) Valuation techniques used in fair value measurement

1) Non-derivative financial instruments

The fair value of financial instruments traded in active liquid markets is determined with reference to quoted market prices.

The fair values of open-ended mutual funds with standard terms and conditions, and traded in active markets are determined with reference to quoted market prices.

Except for the abovementioned financial instruments traded in an active market, the fair value of other financial instruments are based on the valuation techniques or the quotation from counterparty. The fair value using valuation techniques refers to the current fair value of other financial instruments with similar conditions and characteristics, or using a discounted cash flow method, or other valuation techniques which include model calculating with observable market data at the reporting date.

The fair value of unlisted stock held by the Group is estimated by using the market approach and is determined by reference to valuations of similar companies, third-party quotation, and recent financing and operating activities. The significant unobservable inputs is primarily the liquidity discounts. No quantitative information is disclosed due to that the possible changes in liquidity discounts would not cause significant potential financial impact.

2) Derivative financial instruments

The fair value of derivative financial instruments is determined using a valuation technique, with estimates and assumptions consistent with those used by market participants and that are readily available to the Group. The fair value of foreign currency forward contracts is computed individually by each contract using the valuation technique.

(iv) Transfers between levels of the fair value hierarchy

There were no transfers among fair value hierarchies for the years ended December 31, 2019 and 2018.

(v) Movement in financial assets included in Level 3 of fair value hierarchy:

| | 2019 | 2018 |
|---|---|---|
| Balance, beginning of period | $ 44,937 | 29,862 |
| Purchased | - | 3,940 |
| Gains (losses) recognized in other comprehensive income, and presented in unrealized gains (losses) on financial assets measured at fair value through other comprehensive income | (2,943) | 11,135 |
| Balance, end of year | **$ 41,994** | **44,937** |

(w) Financial risk management

The Group is exposed to credit risk, liquidity risk, and market risk (including currency risk, interest rate risk, and other market price risk). The Group has disclosed the information on exposure to the aforementioned risks and the Group's policies and procedures to measure and manage those risks as well as the quantitative information below.

The Group's management monitors and reviews financial activities in accordance with procedures required by relevant regulations and internal controls. Internal auditors undertake both regular and ad hoc reviews of risk management controls and procedures, the results of which are reported to the Group's Board of Directors.

The Group's Board of Directors is responsible for developing and monitoring the Group's risk management policies. The Group's risk management policies are established to identify and analyze the risks faced by the Group, to set appropriate risk limits and controls, and to monitor adherence to the controls. Risk management policies and systems are reviewed regularly to reflect changes in market conditions and the Group's operations.

(i) Credit risk

Credit risk is the risk of financial loss to the Group if a customer or counterparty of a financial instrument fails to meet its contractual obligations, and arises principally from the Group's cash and cash equivalents, derivative instruments, and receivables from customers. As of December 31, 2019 and 2018, the Group's maximum exposure to credit risk amounted to $2,199,204 and $1,970,205, respectively.

The Group maintains cash and enters into derivative transactions with various reputable financial institutions; therefore, the exposure related to potential default by those counter-parties is not considered significant.

In order to reduce credit risk of accounts receivable, the Group has established a credit policy under which each customer is analyzed individually for creditworthiness for the purpose of setting the credit limit. Additionally, the Group continuously evaluates the credit quality of its customers and utilizes its insurance to minimize the credit risk. As of December 31, 2019 and 2018, the Group has insured credit insurance that cover accounts receivable amounting to $579,389 and $569,908, respectively. When the debtors are in default, the Group will receive 90% of the credit insurance.

The Group believes that there is no significant concentration of credit risk due to the Group's large number of customers and their wide geographical spread.

(ii) Liquidity risk

Liquidity risk is the risk that the Group will encounter difficulty in settling its financial liabilities by delivering cash or other financial assets. The Group manages liquidity risk by monitoring regularly the current and mid- to long-term cash demand, maintaining adequate cash and banking facilities, and ensuring compliance with the terms of the loan agreements. As of December 31, 2019 and 2018, the Group had unused credit facilities of $2,299,450 and $2,491,803, respectively.

The table below summarizes the maturity profile of the Group's financial liabilities based on contractual undiscounted payments.

| | Carrying amount | Contractual cash flows | Within 1 year | More than 1 year |
|---|---|---|---|---|
| **December 31, 2019** | | | | |
| Non-derivative financial liabilities: | | | | |
| Short-term borrowings | $ 74,950 | (75,103) | (75,103) | - |
| Notes and accounts payable (including related parties) | 926,065 | (926,065) | (926,065) | - |
| Other payables | 107,339 | (107,339) | (107,339) | - |
| Lease Liabilities | 34,903 | (35,804) | (16,281) | (19,523) |
| Derivative financial instruments: | | | | |
| Foreign currency forward contracts: | | | | |
| Inflow | - | 24,613 | 24,613 | - |
| Outflow | 124 | (24,737) | (24,737) | - |
| **December 31, 2018** | | | | |
| Non-derivative financial liabilities: | | | | |
| Short-term borrowings | $ 138,218 | (138,560) | (138,560) | - |
| Notes and accounts payable (including related parties) | 952,763 | (952,763) | (952,763) | - |
| Other payables | 157,251 | (157,251) | (157,251) | - |
| Guarantee deposits | 15,357 | (15,357) | - | (15,357) |
| Derivative financial instruments: | | | | |
| Foreign currency forward contracts: | | | | |
| Inflow | - | 58,920 | 58,920 | - |
| Outflow | 289 | (59,209) | (59,209) | - |

The Group does not expect that the cash flows included in the maturity analysis would occur significantly earlier or at significantly different amounts.

(iii) Market risk

Market risk is the risk that changes in market prices, such as foreign exchange rates, interest rates, and equity prices, will affect the Group's income or the value of its financial instruments. The objective of market risk management is to manage and control market risk exposures within acceptable parameters, while optimizing the return.

The Group utilizes derivative financial instruments to manage market risk. All such transactions are carried out within the guidelines set by the Group's Board of Directors.

1) Foreign currency risk

The Group utilizes foreign currency forward contracts to hedge its foreign currency exposure with respect to its sales and purchases. The maturity dates of derivative financial instruments the Group entered into were less than six months and did not conform to the criteria for hedge accounting. These financial instruments help to reduce, but do not eliminate, the impact of foreign currency exchange rate movements.

The Group's exposure to foreign currency risk arises from cash and cash equivalents, notes and accounts receivable (including related parties), notes and accounts payable (including related parties), other receivables (including related parties), other payables (including related parties), and loans and borrowings that are denominated in a currency other than the functional currencies of the Group entities. At the reporting date, the carrying amounts of the Group's significant monetary assets and liabilities denominated in a currency other than the functional currencies of the Group entities and their respective sensitivity analysis were as follows (including the monetary items that have been eliminated in the accompanying consolidated financial statements):

(Amounts in Thousands of New Taiwan Dollars)

| | December 31, 2019 | | | | |
|---|---|---|---|---|---|
| | **Foreign currency (in thousands)** | **Exchange rate** | **TWD (in thousands)** | **Change in magnitude** | **Pre-tax effect on profit or loss (in thousands)** |
| Financial assets | | | | | |
| Monetary items | | | | | |
| USD | $ 28,035 | 29.980 | 840,489 | 1 % | 8,405 |
| CNY | 17,921 | 4.303 | 77,114 | 1 % | 771 |
| Financial liabilities | | | | | |
| Monetary items | | | | | |
| USD | 28,815 | 29.980 | 863,874 | 1 % | 8,639 |
| CNY | 62 | 4.303 | 267 | 1 % | 3 |

| | December 31, 2018 | | | | | |
|---|---|---|---|---|---|---|
| | | Foreign currency (in thousands) | Exchange rate | TWD (in thousands) | Change in magnitude | Pre-tax effect on profit or loss (in thousands) |
| Financial assets | | | | | | |
| Monetary items | | | | | | |
| USD | $ | 35,300 | 30.715 | 1,084,240 | 1 % | 10,842 |
| Financial liabilities | | | | | | |
| Monetary items | | | | | | |
| USD | | 31,059 | 30.715 | 953,977 | 1 % | 9,540 |

As the Group deal in diverse foreign currencies, gains and losses on foreign exchange were summarized as a single amount. The aggregate of realized and unrealized foreign exchange loss for the years ended December 31, 2019 and 2018 were $9,110 and $6,993, respectively.

2) Interest rate risk

The Group’s bank loans carried floating interest rates. To manage the interest rate risk, the Group periodically assesses the interest rates of bank loans and maintains good relationships with financial institutions to obtain lower financing costs. The Group also strengthens the management of working capital to reduce the dependence on bank loans, as well as the risk arising from fluctuation of interest rates.

If interest rates had been 100 basis points (1%) higher/lower, with all other variables held constant, pre-tax income for the years ended December 31, 2019 and 2018 would have been $ 750 and $1,382, respectively, lower/higher, which mainly resulted from the borrowings with floating interest rates.

3) Other market price risk

The Group has long-term investments in unlisted stocks, which the Group does not actively participate in trading. The Group anticipates that there is no significant market risk related to the investments.

The investment target of open-ended mutual funds held by the Group are mostly monetary funds or bond funds. (accounted for as financial assets at fair value through profit or loss－current). The Group anticipates that there is no significant market risk related to the funds.

(x) Capital management

In consideration of the industry dynamics and future developments, as well as external environment factors, the Group maintains an optimal capital structure to enhance long-term shareholder value by managing its capital in a manner to ensure that it has sufficient and necessary financial resources to fund its working capital needs, research and development expenses, dividend payments, and other business requirements for continuing operations and to reward shareholders and take into consideration the interests of other shareholders. The Group monitors its capital through reviewing the liability-to-equity ratio periodically.

The Group's liability-to-equity ratio at the end of each reporting period was as follows:

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Total liabilities | $ 1,470,798 | 1,580,063 |
| Total equity | $ 2,806,396 | 2,695,456 |
| Liability-to-equity ratio | 52.41 % | 58.62 % |

In 2019, the Group decreased its bank loans and accounts payable due to the decrease of stock level. It also resulted in the decreasing of liability-to-equity ratio.

(y) Investing and financing activities not affecting current cash flow

(i) For acquisition of right-of-use assets under operating lease for the year ended December 31, 2019, please refer to note 6(i).

(ii) Reconciliation of liabilities arising from financing activities were as follows:

| | | | Non-cash changes | |
|---|---|---|---|---|
| | January 1, 2019 | Cash flows | Acquisition | December 31, 2019 |
| Short-term borrowings | $ 138,218 | (63,268) | - | 74,950 |
| Lease liabilities | 39,355 | (22,657) | 18,205 | 34,903 |
| Guarantee deposits | 15,357 | (15,357) | - | - |
| | $ 192,930 | (101,282) | 18,205 | 109,853 |

| | | | Non-cash changes | |
|---|---|---|---|---|
| | January 1, 2018 | Cash flows | Acquisition | December 31, 2018 |
| Short-term borrowings | $ 492,240 | (354,022) | - | 138,218 |
| Guarantee deposits | 31,099 | (15,742) | - | 15,357 |
| | $ 523,339 | (369,764) | - | 153,575 |

## 7. Related-party transactions:

(a) Name and relationship with related parties

The following are the entities that have had transactions with the Group during the periods covered in the consolidated financial statements.

| Name of related parties | Relationship with the Group |
|---|---|
| Ecolumina Technologies Inc. ("Ecolumina") | The Group's other related party |
| Phison Electronics Corporation ("Phison") | The Company's director (Phison became the Company's director since the Company's reelection of directors on May 30, 2018) |
| Directors, general manager and vice general managers | The Group's key management personnel |

(b) Significant related-party transactions

(i) Revenue

| | 2019 | 2018 |
|---|---|---|
| The Group's key management personnel (the Company's director) | $ 7,434 | 7,725 |
| Other related parties | 281 | 227 |
| | $ 7,715 | 7,952 |

The sales prices and payment terms of sales to related parties depend on the economic environment and market competition, and are not different from those with third-party customers. The payment terms for related parties and third-party customers are EOM 45～60 days and 30～90 days calculated from the delivery date, respectively. The Group does not receive any collateral for the receivables from related parties. The Group has not recognized a specific allowance for doubtful receivables after assessment.

(ii) Purchases

| | 2019 | 2018 |
|---|---|---|
| Other related parties | $ 82 | - |
| The Group's key management personnel－Phison (the Company's director) | 1,085,531 | 614,510 |
| | $ 1,085,613 | 614,510 |

There are no significant differences between the purchase prices for related parties and those for third-party vendors. The payment terms of EOM 45 days shows no significant difference between related parties and third-party vendors.

(iii) Receivables

| Account | Related-party categories | December 31, 2019 | December 31, 2018 |
|---|---|---|---|
| Accounts receivable | The Group's key management personnel (the Company's director) | $ 532 | 929 |
| | Other related parties | - | 110 |
| | | $ 532 | 1,039 |

(iv) Payables

| Account | Related-party categories | December 31, 2019 | December 31, 2018 |
|---|---|---|---|
| Accounts payable | The Group's key management personnel－Phison (the Company's director) | $ 182,583 | 132,755 |
| | | 32 | - |
| Other payables | The Group's key management personnel－Phison (the Company's director) | 17 | 17 |
| | Other related parties | 23 | - |
| | | **$ 182,655** | **132,772** |

(v) Operating expenses

The operating expenses related to the after-sale service provided by related parties were as follows:

| Account | Related-party categories | 2019 | 2018 |
|---|---|---|---|
| Operating expenses | The Group's key management personnel (the Company's director) | $ 422 | 291 |
| | Other related parties | 129 | - |
| | | **$ 551** | **291** |

(c) Compensation for key management personnel

| | 2019 | 2018 |
|---|---|---|
| Short-term employee benefits | $ 40,702 | 33,323 |
| Post-employment benefits | 216 | 216 |
| | **$ 40,918** | **33,539** |

**8. Pledged assets: None**

**9. Significant commitments and contingencies:**

In addition to those in notes 6(l) and (n), the Group had the following unrecognized commitments:

(a) Significant unrecognized commitments

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Unused letters of credit | **$ 10,000** | **10,000** |

(b) As of December 31, 2019, and 2018 , the Group had outstanding letters of guarantee amounting to $15,000 and $20,000, respectively, for the purpose of the payment of customs duties.

**10. Significant loss from disaster: None**

**11. Significant subsequent events: None**

## APACER TECHNOLOGY INC. AND SUBSIDIARIES
### Notes to the Consolidated Financial Statements

**12. Others:**

(a) Employee benefits, depreciation and amortization expenses categorized by function were as follows:

| | 2019 | | | 2018 | | |
|---|---|---|---|---|---|---|
| | Cost of revenue | Operating expenses | Total | Cost of revenue | Operating expenses | Total |
| Employee benefits: | | | | | | |
| Salaries | 138,958 | 491,591 | 630,549 | 128,748 | 465,350 | 594,098 |
| Insurance | 13,305 | 40,617 | 53,922 | 12,346 | 37,532 | 49,878 |
| Pension | 5,525 | 18,990 | 24,515 | 5,138 | 18,343 | 23,481 |
| Others | 8,799 | 24,303 | 33,102 | 8,526 | 25,162 | 33,688 |
| Depreciation | 18,561 | 42,161 | 60,722 | 16,603 | 19,671 | 36,274 |
| Amortization | 2,175 | 9,834 | 12,009 | 2,211 | 7,333 | 9,544 |

**13. Additional disclosures**

(a) Information on significant transactions:

In accordance with the requirements of the Regulations Governing the Preparation of Financial Reports by Securities Issuers, the Group discloses the following information on significant transactions for the year ended December 31, 2019:

(i) Financing provided to other parties: None

(ii) Guarantee and endorsement provided to other parties: None

(iii) Marketable securities held at the reporting date (excluding investments in subsidiaries and associates):

(In Thousands of Shares)

| Investing Company | Marketable Securities Type and Name | Relationship with the Securities Issuer | Financial Statement Account | December 31, 2019 | | | | Maximum percentage of ownership during 2019 | | Note |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Shares/ Units | Carrying Value | Percentage of Ownership | Fair value | Shares/ Units | Percentage of Ownership | |
| The Company | Fund: FSITC Taiwan Money Market fund | - | Financial assets at fair value through profit or loss－current | 3,205 | 49,232 | - | 49,232 | - | - | - |
| The Company | Fund: Yuanta De-Li Money Market Fund | - | Financial assets at fair value through profit or loss－current | 5,516 | 90,295 | - | 90,295 | - | - | - |
| The Company | Stock: Formosa Golf and Country Club Corp. | - | Financial assets at fair value through other comprehensive income－non-current | 3.6 | 9,643 | 0.01 % | 9,643 | 3.6 | 0.01 % | Including stocks and memberships |
| The Company | Stock: OTO Photonics Inc. | - | Financial assets at fair value through other comprehensive income－non-current | 3,266 | 32,105 | 12.78 % | 32,105 | 3,266 | 12.78 % | - |

| Investing Company | Marketable Securities Type and Name | Relationship with the Securities Issuer | Financial Statement Account | December 31, 2019 | | | | Maximum percentage of ownership during 2019 | | Note |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Shares/ Units | Carrying Value | Percentage of Ownership | Fair value | Shares/ Units | Percentage of Ownership | |
| AMS | Stock: Futurepath Technology (Shenzhen) co., ltd | - | Financial assets at fair value through other comprehensive income－non-current | 31.5 | 246 | 1.75 % | 246 | 31.5 | 1.75 % | - |

(iv) Marketable securities for which the accumulated purchase or sale amounts exceed $300 million or 20% of the paid-in capital: None

(v) Acquisition of real estate which exceeds $300 million or 20% of the paid-in capital: None

(vi) Disposal of real estate which exceeds $300 million or 20% of the paid-in capital: None

(vii) Total purchases from and sales to related parties which exceed $100 million or 20% of the paid-in capital:

| Company Name | Related Party | Nature of Relationship | Transaction Details | | | | Transactions with Terms Different from Others | | Notes/Accounts Receivable or (Payable) | | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Purchases/ (Sales) | Amount | % of Total Purchases/ (Sales) | Payment Terms | Unit Price | Payment Terms | Ending Balance | % of Total Notes/Accounts Receivable or (Payable) | |
| The Company | AMA | The Company's subsidiary | (Sales) | (710,753) | (10)% | OA30 | - | - | 53,974 | 6 % | Note 1 |
| The Company | AMK | The Company's subsidiary | (Sales) | (177,940) | (2)% | OA30 | - | - | 8,496 | 1 % | Note 1 |
| The Company | AMH | The Company's subsidiary | (Sales) | (471,007) | (7)% | OA30 | - | - | 19,887 | 2 % | Note 1 |
| The Company | AMC | The Company's subsidiary | (Sales) | (374,910) | (5)% | M60 | - | - | 77,111 | 9 % | Note 1 |
| The Company | AMJ | The Company's subsidiary | (Sales) | (114,957) | (2)% | M60 | - | - | 10,703 | 1 % | Note 1 |
| The Company | Phison | The Company’s director | Purchases | 1,085,531 | 18 % | M45 | - | - | (182,583) | (20)% | - |
| AMA | The Company | AMA’s parent company | Purchases | 710,753 | 97 % | OA30 | - | - | (53,974) | (97)% | Note 1 |
| AMK | The Company | AMK’s parent company | Purchases | 177,940 | 100 % | OA30 | - | - | (8,496) | (100)% | Note 1 |
| AMH | The Company | AMH’s parent company | Purchases | 471,007 | 100 % | OA30 | - | - | (19,887) | (100)% | Note 1 |
| AMC | The Company | AMC’s parent company | Purchases | 374,910 | 100 % | M60 | - | - | (77,111) | (100)% | Note 1 |
| AMJ | The Company | AMJ's parent company | Purchases | 114,957 | 100 % | M60 | - | - | (10,703) | (100)% | Note 1 |

Note 1: The above intercompany transactions have been eliminated when preparing the consolidated financial statements.

(viii) Receivables from related parties which exceed $100 million or 20% of the paid-in capital: None

(ix) Transactions about derivative instruments: Please refer to note 6(b)

(i) Business relationships and significant intercompany transactions:

| | | | | Transaction Details | | | |
|---|---|---|---|---|---|---|---|
| **Number (Note 1)** | **Company Name** | **Counterparty** | **Nature of Relationship (Note 2)** | **Account** | **Amount** | **Payment Terms** | **Percentage of Consolidated Operating Revenue or Total Assets** |
| 0 | The Company | AMA | 1 | Sales | 710,753 | OA30 | 9 % |
| 0 | The Company | AMK | 1 | Sales | 177,940 | OA30 | 2 % |
| 0 | The Company | AMH | 1 | Sales | 471,007 | OA30 | 6 % |
| 0 | The Company | AMC | 1 | Sales | 374,910 | M60 | 5 % |
| 0 | The Company | AMJ | 1 | Sales | 114,957 | M60 | 2 % |
| 0 | The Company | AMA | 1 | Accounts receivable | 53,974 | OA30 | 1 % |
| 0 | The Company | AMK | 1 | Accounts receivable | 8,496 | OA30 | - |
| 0 | The Company | AMH | 1 | Accounts receivable | 19,887 | OA30 | - % |
| 0 | The Company | AMC | 1 | Accounts receivable | 77,111 | M60 | 2 % |
| 0 | The Company | AMJ | 1 | Accounts receivable | 10,703 | M60 | - |

Note 1: Parties to the intercompany transactions are identified and numbered as follows:
1. "0" represents the Company.
2. Subsidiaries are numbered from "1".

Note 2: The relationships with counterparties are as follows:
No. “1” represents the transactions from the Company to subsidiary.
No. “2” represents the transactions from subsidiary to the Company.

Note 3: Intercompany relationships and significant intercompany transactions are disclosed only for sales and accounts receivable. The corresponding purchases and accounts payable are not disclosed.

(b) Information on investees:

(In Thousands of Shares)

| Investor | Investee | Location | Main Businesses and Products | Original Investment Amount | | Balance as of December 31, 2019 | | | Maximum percentage of Ownership during 2019 | | Net Income (Loss) of the Investee | Investment Income (Loss) | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | December 31, 2019 | December 31, 2018 | Shares | Percentage of Ownership | Carrying Value | Shares | Percentage of Ownership | | | |
| The Company | AMA | USA | Trading of memory modules | 610 | 610 | 20 | 100.00 % | 241,863 | 20 | 100.00 % | 25,075 | 25,075 | Note 1 |
| The Company | ACYB | British Virgin Islands | Investment and holding activity | 18,542 | 18,542 | 2,636 | 100.00 % | 10,086 | 2,636 | 100.00 % | (4,756) | (4,756) | Note 1 |
| The Company | AMJ | Japan | Trading of memory modules | 2,918 | 2,918 | 0.2 | 100.00 % | 15,668 | 0.2 | 100.00 % | (217) | (217) | Note 1 |
| The Company | ATPL | India | Trading of memory modules | 915 | 915 | 29 | 100.00 % | 1,432 | 29 | 100.00 % | 36 | 36 | Note 1 |
| The Company | AMK | Hong Kong | Trading of memory modules | 20,917 | 20,917 | 5,000 | 100.00 % | 11,945 | 5,000 | 100.00 % | 529 | 529 | Note 1 |
| The Company | AMH | Netherlands | Trading of memory modules | 130,469 | 130,469 | 80 | 100.00 % | 34,098 | 80 | 100.00 % | 8,978 | 8,978 | Note 1 |
| The Company | JoiiUp | Taiwan | Cloud services and software development | 15,000 | 15,000 | 1,500 | 16.15 % | - | 1,500 | 16.15 % | (11,268) | (884) | - |

Note 1: The above intercompany transactions have been eliminated when preparing the consolidated financial statements.

(c) Information on investments in Mainland China:

(i) Name and main businesses and products of investee companies in Mainland China:

| Investee Company Name | Main Businesses and Products | Total Amount of Paid-in Capital | Method of Investment (Note 1) | Accumulated Outflow of Investment from Taiwan as of January 1, 2019 | Investment Flows | | Accumulated Outflow of Investment from Taiwan as of December 31, 2019 | Net Income (Loss) of Investee | % of Ownership of Direct or Indirect Investment | Maximum percentage of ownership during 2019 | | Investment Income (Loss) (Note 2) | Carrying Value as of December 31, 2019 | Accumulated Inward Remittance of Earnings as of December 31, 2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Outflow | Inflow | | | | Shares | Percentage of Ownership | | | |
| Apacer Electronic (Shanghai) Co., Ltd (AMC) | Trading of memory modules | 14,990 (USD500 thousand) | Type 2 | 14,990 (USD500 thousand) | - | - | 14,990 (USD500 thousand) | (4,926) | 100.00 % | (Note 3) | 100.00 % | (4,926) | 6,884 | - |
| Shenzhen Kylinesports Technology Co. (AMS) | Trading of gaming products | 22,425 (USD748 thousand) | Type 2 | 17,928 (USD598 thousand) | - | - | 17,928 (USD598 thousand) (Note 4) | (1,336) | 99.00 % | (Note 3) | 99.00 % | (1,322) | 15,036 | - |

Note 1: Method of investments:
Type 1: Direct investment in Mainland China.
Type 2: Indirect investment in Mainland China through a holding company established in a third country.
Type 3: Others.
Note 2: Investment income or loss recognized based on the unaudited financial statements of investee companies.
Note 3: There was no shares as the investee company is a limited liability company.
Note 4: The amount of AMK reinvestments amounting to US$134 thousand was excluded.
Note 5: The above intercompany transactions have been eliminated when preparing the consolidated financial statements.
Note 6: The above amounts were translated into New Taiwan dollars at the exchange rate of US$1=NT$29.98.

(ii) Limits on investments in Mainland China:

| Investor | Accumulated Investment in Mainland China as of December 31, 2019 | Investment Amounts Authorized by Investment Commission, MOEA | Upper Limit on Investment Authorized by Investment Commission, MOEA |
|---|---|---|---|
| The Company | 32,918<br>(USD 1,098 thousand) | 36,935<br>(USD 1,232 thousand) | 1,683,748 |

(iii) Significant transactions with investee companies in Mainland China:

The transactions between parent and investee companies in Mainland China (the intercompany transaction) have been eliminated when preparing the consolidated financial statements. Please refer to section " Information on significant transactions" and " Business relationships and significant intercompany transactions" for detail description.

## 14. Segment information:

(a) General information

The Group has two reportable segments: Asia segment and America and Europe segment. The Asia segment engages in the manafacturing, maintenance, research and development, and sale of the Group's products. The America and Europe segment engages in the sale of the Group's products.

The Group's reportable segments are separated by geographical segments. Each segment provides different organizational functions and marketing strategies, and thus should be managed separately.

(b) Reportable segments, profit or loss, segment assets, basis of measurement, and reconciliation

The Group uses income before income tax as the measurement for segment profit and the basis of resource allocation and performance assessment. There was no material inconsistency between the accounting policies adopted for the operating segments and the accounting policies described in note 4. The reporting amount is consistent with the report used by chief operating decision maker.

The Group's operating segment information and reconciliation are as follows:

| | 2019 | | | |
|---|---|---|---|---|
| | **Asia** | **America and Europe** | **Adjustments and eliminations** | **Total** |
| External revenue | $ 6,044,878 | 1,440,943 | - | 7,485,821 |
| Intra-group revenue | 1,858,573 | - | (1,858,573) | - |
| Total segment revenue | **$ 7,903,451** | **1,440,943** | **(1,858,573)** | **7,485,821** |
| **Segment profit (loss)** | **$ 462,457** | **46,090** | **(29,647)** | **478,900** |

| | 2018 | | | |
|---|---|---|---|---|
| | **Asia** | **America and Europe** | **Adjustments and eliminations** | **Total** |
| External revenue | $ 6,855,860 | 2,585,758 | - | 9,441,618 |
| Intra-group revenue | 3,116,690 | - | (3,116,690) | - |
| Total segment revenue | **$ 9,972,550** | **2,585,758** | **(3,116,690)** | **9,441,618** |
| **Segment profit (loss)** | **$ 439,278** | **18,818** | **(19,590)** | **438,506** |

(c) Product information

Revenues from external customers are detailed below:

| **Products and services** | **2019** | **2018** |
|---|---|---|
| Memory modules | $ 2,887,603 | 4,644,680 |
| Flash memory products | 4,591,572 | 4,793,379 |
| Others | 6,646 | 3,559 |
| | **$ 7,485,821** | **9,441,618** |

(d) Geographic information

In presenting information on the basis of geography, segment revenue is based on the geographical location of customers, and segment assets are based on the geographical location of the assets.

Revenues from external customers are detailed below:

| **Products and services** | **2019** | **2018** |
|---|---|---|
| Taiwan | $ 1,456,120 | 1,863,323 |
| Americas | 896,248 | 2,211,779 |
| Hong Kong | 680,137 | 760,659 |
| Japan | 664,096 | 642,576 |
| Mainland China | 873,099 | 590,928 |
| Others | 2,916,121 | 3,372,353 |
| | **$ 7,485,821** | **9,441,618** |

Non-current assets:

| **Products and services** | **2019** | **2018** |
|---|---|---|
| Taiwan | $ 949,222 | 950,075 |
| Japan | 8,724 | 1,550 |
| Netherland | 6,046 | 165 |
| Americas | 6,946 | 918 |
| Others | 2,633 | 1,421 |
| | **$ 973,571** | **954,129** |

Non-current assets include property, plant and equipment, right-of-use assets, intangible assets, and other assets, but do not include financial instruments and deferred income tax assets.

(e) Major customer information

The Group doesn’t have a single customer representing at least 10% of revenue in the consolidated statements of comprehensive income.

(2) Individual financial report

## Independent Auditors' Report

To the Board of Directors of Apacer Technology Inc.:

**Opinion**

We have audited the parent-company-only financial statements of Apacer Technology Inc. (the "Company"), which comprise the balance sheets as of December 31, 2019 and 2018, and the statements of comprehensive income, changes in equity and cash flows for the years then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying parent-company-only financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and its financial performance and its cash flows for the years then ended in accordance with the Regulations Governing the Preparation of Financial Reports by Securities Issuers.

**Basis for Opinion**

We conducted our audits in accordance with the Regulations Governing Auditing and Certification of Financial Statements by Certified Public Accountants and the auditing standards generally accepted in the Republic of China. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Parent-Company-Only Financial Statements section of our report. We are independent of the Company in accordance with the Certified Public Accountants Code of Professional Ethics in Republic of China (the "Code"), and we have fulfilled our other ethical responsibilities in accordance with the Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis of our opinion.

**Key Audit Matters**

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the parent-company-only financial statements of the current period. These matters were addressed in the context of our audit of parent-company-only financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Key audit matters for the Company's financial statements for the year ended December 31, 2019 are stated as follows:

1. Revenue recognition

   Please refer to notes 4(o) and 6(s) for the accounting policy on "Revenue recognition" and "Revenue from contracts with customers" for the related disclosures, respectively, of the notes to parent-company-only financial statements.

   Description of key audit matter:

   The Company engages primarily in the manufacturing and sales of memory modules and flash memory products, with product diversification and market channels spread globally. The Company recognizes its revenue depending on the various trade terms in each individual sale transaction and the transfer of control of the goods, which are considered to be complex in determining the timing of revenue recognition. Consequently, the revenue recognition has been identified as one of the key audit matters.

How the matter was addressed in our audit:

In relation to the key audit matter above, our principal audit procedures included understanding and testing the design and operating effectiveness of the Company's internal controls over revenue recognition; assessing whether the accounting policy of the timing of revenue recognition is appropriate through understanding the main types of revenues of the Company, and reviewing the sales contracts and the related trade terms with customers; assessing whether the accounting treatment of revenue recognition is appropriate through performing a sample test of the original documents of sales transaction; performing sample tests of sales transactions that took place before and after the balance sheet date, and reviewing the related documents to understand and analyze the reason for any identified sales returns and allowances that took place after the balance sheet date, to assess whether the revenue is recognized within the proper period.

2. Valuation of inventories

Please refer to notes 4(g), 5 and 6(f) for the inventory accounting policy, "Critical accounting judgments and key sources of estimation uncertainty" for estimation uncertainty of inventory valuation, and "Inventories" for the related disclosures, respectively, of the notes to parent-company-only financial statements.

Description of key audit matter:

The Company's inventories are measured at the lower of cost and net realizable value. Management is required to make judgments and estimates in determining the net realizable value of inventories on the reporting date. The market prices of main raw materials of the Company, constituting the majority amount of product cost, fluctuate rapidly and the life cycle of certain products of the Company are short, which could possibly result in a price decline and obsolescence of inventories, wherein the inventories cost may exceed its net realizable value, as the Company fails to timely respond to market changes. Therefore, the valuation of inventories has been identified as one of the key audit matters.

How the matter was addressed in our audit:

In relation to the key audit matter above, our principal audit procedures included obtaining and understanding the Company's accounting policy of valuation of inventories, performing a retrospective test to understand the reasonableness of estimations of allowance for inventory valuation loss with reference to actual write-off of inventories in a subsequent period, and evaluating the reasonableness of the accounting policy of valuation of inventories; as well as performing a sample test of the estimated selling price provided by Management to assess the reasonableness of the net realizable value and allowance for inventory valuation loss.

**Responsibilities of Management and Those Charged with Governance for the Parent-Company-Only Financial Statements**

Management is responsible for the preparation and fair presentation of the parent-company-only financial statements in accordance with Regulations Governing the Preparation of Financial Reports by Securities Issuers, and for such internal control as management determines is necessary to enable the preparation of parent-company-only financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the parent-company-only financial statements, management is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so.

Those charged with governance (including members of the Audit Committee) are responsible for overseeing the Company's financial reporting process.

**Auditor's Responsibilities for the Audit of the Parent-Company-Only Financial Statements**

Our objectives are to obtain reasonable assurance about whether the parent-company-only financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the auditing standards generally accepted in the Republic of China will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these parent-company-only financial statements.

As part of an audit in accordance with auditing standards generally accepted in the Republic of China, we exercised professional judgment and maintained professional skepticism throughout the audit. We also:

1. Identified and assessed the risks of material misstatement of the parent-company-only financial statements, whether due to fraud or error, designed and performed audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

2. Obtained an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control.

3. Evaluated the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

4. Concluded on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the parent-company-only financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Company to cease to continue as a going concern.

5. Evaluated the overall presentation, structure and content of the parent-company-only financial statements, including the disclosures, and whether the parent-company-only financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

6. Obtained sufficient and appropriate audit evidence regarding the financial information of the investees accounted for using equity method to express an opinion on the parent-company-only financial statements. We are responsible for the direction, supervision and performance of the audit. We remained solely responsible for our audit opinion.

We communicated with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identified during our audit.

We also provided those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determined those matters that were of most significance in the audit of the parent-company-only financial statements for the year ended December 31, 2019 and are therefore the key audit matters. We described these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determined that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The engagement partners on the audit resulting in this independent auditors' report are Tzu-Chieh Tang and Mei-Yen Chen.

KPMG

Taipei, Taiwan (Republic of China)
February 25, 2020

**Notes to Readers**

The accompanying financial statements are intended only to present the financial position, financial performance and cash flows in accordance with the accounting principles and practices generally accepted in the Republic of China and not those of any other jurisdictions. The standards, procedures and practices to audit such parent-company-only financial statements are those generally accepted and applied in the Republic of China.

The independent auditors' audit report and the accompanying financial statements are the English translation of the Chinese version prepared and used in the Republic of China. If there is any conflict between, or any difference in the interpretation of the English and Chinese language independent auditors' audit report and financial statements, the Chinese version shall prevail.

(English Translation of Parent-Company-Only Financial Statements Originally Issued in Chinese)

# APACER TECHNOLOGY INC.

## Balance Sheets

## December 31, 2019 and 2018

## (Expressed in Thousands of New Taiwan Dollars)

| | Assets | December 31, 2019 Amount | % | December 31, 2018 Amount | % |
|---|---|---|---|---|---|
| | **Current assets:** | | | | |
| 1100 | Cash and cash equivalents (note 6(a)) | $ 421,569 | 10 | 604,931 | 14 |
| 1110 | Financial assets at fair value through profit or loss－current (note 6(b)) | 139,604 | 3 | 454 | - |
| 1170 | Notes and accounts receivable, net (notes 6(d) and (s)) | 706,872 | 17 | 882,638 | 21 |
| 1180 | Accounts receivable from related parties (notes 6(d), (s) and 7) | 170,703 | 4 | 171,885 | 4 |
| 1200 | Other receivables (notes 6(e) and 7) | 50,287 | 1 | 42,914 | 1 |
| 1310 | Inventories (note 6(f)) | 913,898 | 22 | 1,129,945 | 27 |
| 1470 | Other current assets | 8,845 | - | 11,155 | - |
| 1476 | Other financial assets－current (note 6(a)) | 409,700 | 10 | - | - |
| | **Total current assets** | 2,821,478 | 67 | 2,843,922 | 67 |
| | **Non-current assets:** | | | | |
| 1517 | Financial assets at fair value through other comprehensive income－non-current (note 6(c)) | 41,748 | 1 | 44,520 | 1 |
| 1550 | Investments accounted for using equity method (note 6(g)) | 315,092 | 8 | 297,514 | 7 |
| 1600 | Property, plant and equipment (note 6(h)) | 872,214 | 21 | 883,660 | 21 |
| 1755 | Right-of-use assets (note 6(i)) | 14,012 | - | - | - |
| 1780 | Intangible assets (note 6(j)) | 62,130 | 1 | 66,024 | 2 |
| 1840 | Deferred income tax assets (note 6(p)) | 86,042 | 2 | 89,124 | 2 |
| 1980 | Other financial assets－non-current | 3,308 | - | 3,308 | - |
| 1990 | Other non-current assets | 123 | - | 391 | - |
| | **Total non-current assets** | 1,394,669 | 33 | 1,384,541 | 33 |
| | **Total assets** | $ 4,216,147 | 100 | 4,228,463 | 100 |

| | Liabilities and Equity | December 31, 2019 Amount | % | December 31, 2018 Amount | % |
|---|---|---|---|---|---|
| | **Current liabilities:** | | | | |
| 2100 | Short-term borrowings (note 6(k)) | $ 74,950 | 2 | 138,218 | 3 |
| 2120 | Financial liabilities at fair value through profit or loss－current (note 6(b)) | 124 | - | 289 | - |
| 2170 | Notes and accounts payable | 741,021 | 17 | 819,047 | 20 |
| 2180 | Accounts payable to related parties (note 7) | 183,149 | 4 | 132,755 | 3 |
| 2200 | Other payables (note 6(t)) | 286,169 | 7 | 315,021 | 8 |
| 2220 | Other payables to related parties (note 7) | 1,287 | - | 2,543 | - |
| 2230 | Current income tax liabilities | 41,923 | 1 | 55,313 | 1 |
| 2250 | Provisions－current (note 6(m)) | 11,685 | - | 12,625 | - |
| 2280 | Lease liabilities－current (note 6(l)) | 2,784 | - | - | - |
| 2300 | Other current liabilities | 26,515 | 1 | 30,896 | 1 |
| | **Total current liabilities** | 1,369,607 | 32 | 1,506,707 | 36 |
| | **Non-current liabilities:** | | | | |
| 2570 | Deferred income tax liabilities (note 6(p)) | 1,779 | - | 903 | - |
| 2580 | Lease liabilities－non-current (note 6(l)) | 10,647 | - | - | - |
| 2640 | Net defined benefit liabilities (note 6(o)) | 27,868 | 1 | 25,570 | - |
| | **Total non-current liabilities** | 40,294 | 1 | 26,473 | - |
| | **Total liabilities** | 1,409,901 | 33 | 1,533,180 | 36 |
| | **Equity (note 6(q)):** | | | | |
| 3100 | Common stock | 1,008,978 | 24 | 1,008,978 | 24 |
| 3200 | Capital surplus | 359,910 | 9 | 359,910 | 9 |
| 3300 | Retained earnings | 1,515,937 | 36 | 1,393,935 | 33 |
| 3400 | Other equity | (78,579) | (2) | (67,540) | (2) |
| | **Total equity** | 2,806,246 | 67 | 2,695,283 | 64 |
| | **Total liabilities and equity** | $ 4,216,147 | 100 | 4,228,463 | 100 |



See accompanying notes to parent-company-only financial statements.

(English Translation of Parent-Company-Only Financial Statements Originally Issued in Chinese)

# APACER TECHNOLOGY INC.

## Statements of Comprehensive Income

## For the years ended December 31, 2019 and 2018

## (Expressed in Thousands of New Taiwan Dollars, Except for Earnings Per Share)

| | | 2019 | | 2018 | |
|---|---|---|---|---|---|
| | | Amount | % | Amount | % |
| 4000 | **Revenue (notes 6((s) and 7)** | $ 7,151,398 | 100 | 9,064,195 | 100 |
| 5000 | **Cost of revenue (notes 6(f), (h), (j), (l), (m), (n), (o), 7 and 12)** | (6,043,059) | (85) | (8,009,188) | (88) |
| | **Gross profit before unrealized gross profit** | 1,108,339 | 15 | 1,055,007 | 12 |
| 5920 | Realized (unrealized) gross profit | (2,516) | - | 7,255 | - |
| | **Gross profit** | 1,105,823 | 15 | 1,062,262 | 12 |
| | **Operating expenses (notes 6(d), (h), (i), (j), (l), (n), (o), (t), 7 and 12):** | | | | |
| 6100 | Selling expenses | (367,615) | (5) | (362,029) | (4) |
| 6200 | Administrative expenses | (177,671) | (2) | (161,770) | (2) |
| 6300 | Research and development expenses | (117,884) | (2) | (120,479) | (1) |
| 6450 | Expected credit losses | (1,729) | - | (1,514) | - |
| 6000 | **Total operating expenses** | (664,899) | (9) | (645,792) | (7) |
| | **Operating income** | 440,924 | 6 | 416,470 | 5 |
| | **Non-operating income and loss (notes 6(g), (h), (l), (n) and (u)):** | | | | |
| 7010 | Other income | 3,035 | - | 4,195 | - |
| 7020 | Other gains and losses－net | (1,463) | - | 8,431 | - |
| 7050 | Finance costs | (4,600) | - | (7,650) | - |
| 7070 | Share of profit of subsidiaries and associates | 28,761 | - | 17,068 | - |
| | **Total non-operating income and loss** | 25,733 | - | 22,044 | - |
| | **Income before income tax** | 466,657 | 6 | 438,514 | 5 |
| 7950 | **Less: Income tax expenses (note 6(p))** | (90,015) | (1) | (79,675) | (1) |
| | **Net income** | 376,642 | 5 | 358,839 | 4 |
| | **Other comprehensive income (notes 6(o), (p), (q), and (v)):** | | | | |
| 8310 | **Items that may not be reclassified subsequently to profit or loss:** | | | | |
| 8311 | Remeasurements of defined benefit plans | (2,292) | - | (3,207) | - |
| 8316 | Unrealized gains (losses) from investments in equity instruments measured at fair value through other comprehensive income | (2,772) | - | 11,135 | - |
| 8330 | Share of other comprehensive income of subsidiaries | (169) | - | - | - |
| 8349 | Less: income tax related to items that will not be reclassified subsequently to profit or loss | 458 | - | 641 | - |
| | | (4,775) | - | 8,569 | - |
| 8360 | **Items that may be reclassified subsequently to profit or loss** | | | | |
| 8361 | Exchange differences on translation of foreign operations | (8,098) | - | 8,260 | - |
| 8399 | Less: income tax related to items that may be reclassified subsequently to profit or loss | - | - | - | - |
| | | (8,098) | - | 8,260 | - |
| | **Other comprehensive income for the year, net of income tax** | (12,873) | - | 16,829 | - |
| | **Total comprehensive income for the year** | **$ 363,769** | **5** | **375,668** | **4** |
| | **Earnings per share (in New Taiwan dollars) (note 6(r)) :** | | | | |
| 9750 | Basic earnings per share | **$** | **3.73** | | **3.56** |
| 9850 | Diluted earnings per share | **$** | **3.68** | | **3.50** |

See accompanying notes to parent-company-only financial statements.

(English Translation of Financial Statements Originally Issued in Chinese)

# APACER TECHNOLOGY INC.

## Statements of Changes in Equity

## For the years ended December 31, 2019 and 2018

## (Expressed in Thousands of New Taiwan Dollars)

| | | | Retained earnings | | | | Total other equity | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Common stock | Capital Surplus | Legal reserve | Special reserve | Unappropriated earnings | Total | Exchange differences on translation of foreign operations | Unrealized gains (losses) on financial assets measured at fair value through other comprehensive income | Total | Total equity |
| **Balance at January 1, 2018** | $ 1,008,978 | 358,225 | 267,690 | 30,971 | 951,412 | 1,250,073 | (49,321) | - | (49,321) | 2,567,955 |
| Effects of retrospective application | - | - | - | - | 49,923 | 49,923 | - | (37,614) | (37,614) | 12,309 |
| Equity at January 1, 2018 after adjustments | 1,008,978 | 358,225 | 267,690 | 30,971 | 1,001,335 | 1,299,996 | (49,321) | (37,614) | (86,935) | 2,580,264 |
| Appropriation of earnings: | | | | | | | | | | |
| Legal reserve | - | - | 40,542 | - | (40,542) | - | - | - | - | - |
| Special reserve | - | - | - | 18,350 | (18,350) | - | - | - | - | - |
| Cash dividends distributed to shareholders | - | - | - | - | (262,334) | (262,334) | - | - | - | (262,334) |
| Net income in 2018 | - | - | - | - | 358,839 | 358,839 | - | - | - | 358,839 |
| Other comprehensive income in 2018 | - | - | - | - | (2,566) | (2,566) | 8,260 | 11,135 | 19,395 | 16,829 |
| Total comprehensive income in 2018 | - | - | - | - | 356,273 | 356,273 | 8,260 | 11,135 | 19,395 | 375,668 |
| Changes in equity of associates accounted for using equity method | - | 1,685 | - | - | - | - | - | - | - | 1,685 |
| **Balance at December 31, 2018** | 1,008,978 | 359,910 | 308,232 | 49,321 | 1,036,382 | 1,393,935 | (41,061) | (26,479) | (67,540) | 2,695,283 |
| Effects of retrospective application | - | - | - | - | (561) | (561) | - | - | - | (561) |
| Balance at January 1, 2019 after adjustments | 1,008,978 | 359,910 | 308,232 | 49,321 | 1,035,821 | 1,393,374 | (41,061) | (26,479) | (67,540) | 2,694,722 |
| Appropriation of earnings: | | | | | | | | | | |
| Legal reserve | - | - | 35,884 | - | (35,884) | - | - | - | - | - |
| Special reserve | - | - | - | 18,219 | (18,219) | - | - | - | - | - |
| Cash dividends distributed to shareholders | - | - | - | - | (252,245) | (252,245) | - | - | - | (252,245) |
| Net income in 2019 | - | - | - | - | 376,642 | 376,642 | - | - | - | 376,642 |
| Other comprehensive income in 2019 | - | - | - | - | (1,834) | (1,834) | (8,098) | (2,941) | (11,039) | (12,873) |
| Total comprehensive income in 2019 | - | - | - | - | 374,808 | 374,808 | (8,098) | (2,941) | (11,039) | 363,769 |
| **Balance at December 31, 2019** | **$ 1,008,978** | **359,910** | **344,116** | **67,540** | **1,104,281** | **1,515,937** | **(49,159)** | **(29,420)** | **(78,579)** | **2,806,246** |

See accompanying notes to parent-company-only financial statements.

(English Translation of Financial Statements Originally Issued in Chinese)

# APACER TECHNOLOGY INC.

## Statements of Cash Flows

## For the years ended December 31, 2019 and 2018

## (Expressed in Thousands of New Taiwan Dollars)

| | 2019 | 2018 |
|---|---|---|
| **Cash flows from operating activities:** | | |
| **Income before income tax** | $ 466,657 | 438,514 |
| **Adjustments:** | | |
| Depreciation | 50,061 | 35,013 |
| Amortization | 11,997 | 9,520 |
| Expected credit loss | 1,729 | 1,514 |
| Interest expense | 4,600 | 7,650 |
| Interest income | (3,035) | (1,039) |
| Share of profits of subsidiaries and associates | (28,761) | (17,068) |
| Loss on disposal of property, plant and equipment | 355 | - |
| Impairment loss on non-financial assets | - | 127 |
| Unrealized (realized) gross profit on sales to subsidiaries and associates | 2,516 | (7,255) |
| Subtotal | 39,462 | 28,462 |
| Changes in operating assets and liabilities: | | |
| Changes in operating assets: | | |
| Financial assets at fair value through profit or loss | (250) | 234 |
| Notes and accounts receivable | 174,037 | 61,830 |
| Accounts receivable from related parties | 1,182 | 223,923 |
| Other receivables | (7,373) | 33,340 |
| Inventories | 216,047 | 315,672 |
| Other current assets | 2,436 | (2,419) |
| Net changes in operating assets | 386,079 | 632,580 |
| Changes in operating liabilities: | | |
| Financial liabilities at fair value through profit or loss | (165) | (65) |
| Notes and accounts payable | (78,026) | (60,519) |
| Accounts payable to related parties | 50,394 | (76,285) |
| Other payables | (28,852) | 38,045 |
| Other payables to related parties | (1,256) | 1,024 |
| Provisions | (940) | (3,070) |
| Other current liabilities | (4,381) | 9,754 |
| Net defined benefit liabilities | 6 | 4 |
| Net changes in operating liabilities | (63,220) | (91,112) |
| Total changes in operating assets and liabilities | 322,859 | 541,468 |
| Total adjustments | 362,321 | 569,930 |
| Cash provided by operations | 828,978 | 1,008,444 |
| Interest received | 3,035 | 1,045 |
| Interest paid | (4,600) | (7,867) |
| Income taxes paid | (99,115) | (111,303) |
| **Net cash provided by operating activities** | 728,298 | 890,319 |

See accompanying notes to parent-company-only financial statements.

(English Translation of Financial Statements Originally Issued in Chinese)

**APACER TECHNOLOGY INC.**

**Statements of Cash Flows (Continued)**

**For the years ended December 31, 2019 and 2018**

**(Expressed in Thousands of New Taiwan Dollars)**

| | 2019 | 2018 |
|---|---|---|
| **Cash flows from investing activities:** | | |
| Acquisition of financial assets at fair value through other comprehensive income | - | (3,523) |
| Acquisition of financial assets at fair value through profit or loss | (138,900) | - |
| Acquisition of property, plant and equipment | (25,767) | (23,326) |
| Acquisition of intangible assets | (4,141) | (45,313) |
| Increase in other financial assets—current | (409,700) | - |
| Decrease (increase) in other non-current assets | (3,694) | 16,956 |
| **Net cash used in investing activities** | (582,202) | (55,206) |
| **Cash flows from financing activities:** | | |
| Decrease in short-term loans | (63,268) | (354,022) |
| Decrease in guarantee deposits | - | (1,339) |
| Payment of lease liabilities | (13,945) | - |
| Cash dividends distributed to shareholders | (252,245) | (262,334) |
| **Net cash used in financing activities** | (329,458) | (617,695) |
| **Net increase (decrease) in cash and cash equivalents** | (183,362) | 217,418 |
| **Cash and cash equivalents at beginning of year** | 604,931 | 387,513 |
| **Cash and cash equivalents at end of year** | $ **421,569** | **604,931** |

See accompanying notes to arent-company-only financial statements.

(English Translation of Parent-Company-Only Financial Statements Originally Issued in Chinese)

**APACER TECHNOLOGY INC.**

**Notes to Parent-Company-Only Financial Statements**

**For the years ended December 31, 2019 and 2018**

**(Expressed in Thousands of New Taiwan Dollars, Unless Otherwise Specified)**

## 1. Organization and business

Apacer Technology Inc. (the "Company") was incorporated on April 16, 1997, as a company limited by shares under the laws of the Republic of China ("R.O.C.") and registered under the Ministry of Economic Affairs, R.O.C. The address of the Company's registered office is 1F, No.32, Zhongcheng Rd., Tucheng Dist., New Taipei City, Taiwan. The Company is engaged in the research and development, design, manufacturing, processing, maintenance and sales of memory modules, flash memory cards and consumer electronic products.

## 2. Authorization of parent-company-only financial statements

These parent-company-only financial statements were authorized for issuance by the Board of Directors on February 25, 2020.

## 3. Application of new, revised or amended accounting standards and interpretations

(a) The impact of the International Financial Reporting Standards ("IFRSs") endorsed by the Financial Supervisory Commission, R.O.C. ("FSC") which have already been adopted.

The following new standards, interpretations and amendments have been endorsed by the FSC and are effective for annual periods beginning on or after January 1, 2019.

| New, Revised or Amended Standards and Interpretations | Effective date per IASB |
|---|---|
| IFRS 16 "Leases" | January 1, 2019 |
| IFRIC 23 "Uncertainty over Income Tax Treatments" | January 1, 2019 |
| Amendments to IFRS 9 "Prepayment features with negative compensation" | January 1, 2019 |
| Amendments to IAS 19 "Plan Amendment, Curtailment or Settlement" | January 1, 2019 |
| Amendments to IAS 28 "Long-term interests in associates and joint ventures" | January 1, 2019 |
| Annual Improvements to IFRS Standards 2015–2017 Cycle | January 1, 2019 |

Except for the following items, the Company assessed that the initial application of the above IFRSs would not have any material impact on the Company's parent-company-only financial statements. The extent and impact of changes are as follows:

(i) IFRS 16"Leases"

IFRS 16 replaces the existing leases guidance, including IAS 17 "Leases", IFRIC 4 "Determining whether an Arrangement contains a Lease", SIC-15 "Operating Leases – Incentives" and SIC-27 "Evaluating the Substance of Transactions Involving the Legal Form of a Lease".

The Company applied IFRS 16 using the modified retrospective approach, under which the cumulative effect of initial application is recognized in retained earnings on January 1, 2019. The extent and impact of the changes in accounting policies are disclosed below:

1) Definition of a lease

   Previously, the Company determined at contract inception whether an arrangement is or contains a lease under IFRIC 4. Under IFRS 16, the Company assesses whether a contract is or contains a lease based on the definition of a lease, as explained in Note 4(k).

   On transition to IFRS 16, the Company elected to apply the practical expedient to grandfather the assessment of which transactions are leases. The Company applied IFRS 16 only to contracts that were previously identified as leases. Contracts that were not identified as leases under IAS 17 and IFRIC 4 were not reassessed for whether there is a lease. Therefore, the definition of a lease under IFRS 16 was applied only to contracts entered into or changed on or after January 1, 2019.

2) As a lessee

   As a lessee, the Company previously classified leases as operating or finance leases based on its assessment of whether the lease transferred significantly all of the risks and rewards incidental to ownership of the underlying asset to the Company. Under IFRS 16, the Company recognizes right-of-use assets and lease liabilities for most leases – i.e. these leases are on-balance sheet.

   The Company decided to apply recognition exemptions to short-term leases of office equipments.

   Leases classified as operating leases under IAS 17, at transition, lease liabilities were measured at the present value of the remaining lease payments, discounted at the Company's incremental borrowing rate as at January 1, 2019. Right-of-use assets are measured at their carrying amount as if IFRS 16 had been applied since the commencement date, discounted using the lessee's incremental borrowing rate at the date of initial application.

   In addition, the Company used the following practical expedients when applying IFRS 16 to leases.

   — Applied a single discount rate to a portfolio of leases with similar characteristics.

   — Excluded initial direct costs from measuring the right-of-use assets at the date of initial application.

3) Impacts on financial statements

On transition to IFRS 16, the Company recognised additional $12,215 of right-of-use assets and $12,376 of lease liabilities, as well as investments accounted for using equity method to decrease by $400 and retained earnings to decrease by $561. When measuring lease liabilities, the Company discounted lease payments using its incremental borrowing rate at January 1, 2019. The weighted-average rate applied is 2.63%.

The explanation of differences between operating lease commitments disclosed at the end of the annual reporting period immediately preceding the date of initial application, and lease liabilities recognized in the statement of financial position at the date of initial application disclosed as follows:

| | **January 1, 2019** |
|---|---|
| Operating lease commitment at December 31, 2018 as disclosed in the Company's parent-company-only financial statements | **$ 13,050** |
| Discounted using the incremental borrowing rate at January 1, 2019 (Same as lease liabilities recognized at January 1, 2019) | **$ 12,376** |

(b) The impact of IFRS endorsed by FSC but not yet effective

The following new standards, interpretations and amendments have been endorsed by the FSC and are effective for annual periods beginning on or after January 1, 2020 in accordance with Ruling No. 1080323028 issued by the FSC on July 29, 2019:

| **New, Revised or Amended Standards and Interpretations** | **Effective date per IASB** |
|---|---|
| Amendments to IFRS 3 "Definition of a Business" | January 1, 2020 |
| Amendments to IFRS 9, IAS39 and IFRS7 "Interest Rate Benchmark Reform" | January 1, 2020 |
| Amendments to IAS 1 and IAS 8 "Definition of Material" | January 1, 2020 |

The Company assesses that the adoption of the abovementioned standards would not have any material impact on its parent-company-only financial statements.

(c) The impact of IFRS issued by IASB but not yet endorsed by the FSC

The following IFRSs have been issued by the IASB, but have yet to be endorsed by the FSC:

| **New, Revised or Amended Standards and Interpretations** | **Effective date per IASB** |
|---|---|
| Amendments to IFRS 10 and IAS 28 "Sale or Contribution of Assets Between an Investor and Its Associate or Joint Venture" | Effective date to be determined by IASB |
| IFRS 17 "Insurance Contracts" | January 1, 2021 |
| Amendments to IAS 1 "Classification of Liabilities as Current or Non-current" | January 1, 2022 |

The Company assessed that the above IFRSs will irrelevant to it.

**4. Summary of significant accounting policies:**

The significant accounting policies presented in the parent-company-only financial statements are summarised as follows. Except for those specifically indicated, the following accounting policies were applied consistently throughout the periods presented in the Company's parent-company-only financial statements.

(a) Statement of compliance

The Company's accompanying parent-company-only financial statements have been prepared in accordance with the Regulations Governing the Preparation of Financial Reports by Securities Issuers (the "Regulations").

(b) Basis of preparation

(i) Basis of measurement

The accompanying parent-company-only financial statements have been prepared on a historical cost basis except for the following items in the balance sheets:

1) Financial instruments measured at fair value through profit or loss (including derivative financial instruments);
2) Financial assets at fair value through other comprehensive income; and
3) Defined benefit liabilities are recognized as the present value of the defined benefit obligation less fair value of the plan assets and the effect of the asset ceiling mentioned in note 4(p).

(ii) Functional and presentation currency

The functional currency of the Company is determined based on the primary economic environment in which the Company operates. The Company's parent-company-only financial statements are presented in New Taiwan dollars, which is the Company's functional currency. Except when otherwise indicated, all financial information presented in New Taiwan dollars has been rounded to the nearest thousand.

(c) Foreign currency

(i) Foreign currency transactions

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions. At the end of each subsequent reporting period, monetary items denominated in foreign currencies are translated into the functional currencies using the exchange rate at that date. Non-monetary items denominated in foreign currencies that are measured at fair value are translated into the functional currencies using the exchange rate at the date that the fair value was determined. Non-monetary items denominated in foreign currencies that are measured based on historical cost are translated using the exchange rate at the date of the transaction.

Exchange differences are generally recognized in profit or loss, except for those differences relating to equity investments designated as at fair value through other comprehensive income, which are recognized in other comprehensive income.

(ii) Foreign operations

The assets and liabilities of foreign operations, including goodwill and fair value adjustments arising from acquisition, are translated into the presentation currency of the Company's parent-company-only financial statements at the exchange rates at the reporting date. The income and expenses of foreign operations are translated into the presentation currency of the Company's parent-company-only financial statements at the average exchange rates for the period. All resulting exchange differences are recognized in other comprehensive income.

On the disposal of a foreign operation which involves a loss of control over a subsidiary or a loss of significant influence over an associate that includes a foreign operation, all of the exchange differences accumulated in equity in respect of that operation attributable to the shareholders of the Company are entirely reclassified to profit or loss. In the case of a partial disposal that does not result in the Company losing control over a subsidiary, the proportionate share of accumulated exchange differences is reclassified to non-controlling interests. For a partial disposal of the Company's ownership interest in an associate, the proportionate share of the accumulated exchange differences in equity is reclassified to profit or loss.

When the settlement of a monetary receivable from or payable to a foreign operation is neither planned nor likely to occur in the foreseeable future, the monetary item is, in substance, a part of net investment in that foreign operation, and the related foreign exchange gains and losses thereon are recognized as other comprehensive income.

(d) Classification of current and non-current assets and liabilities

An asset is classified as current when one of following criteria is met; all other assets are classified as non-current assets.

(i) It is expected to be realized, or sold or consumed in the normal operating cycle;
(ii) It is held primarily for the purpose of trading;
(iii) It is expected to be realized within twelve months after the and of the reporting period ("the reporting date"); or
(iv) The asset is cash or a cash equivalent unless the asset is restricted from being exchanged or used to settle a liability for at least twelve months after the reporting date.

A liability is classified as current when one of following criteria is met; all other liabilities are classified as non-current liabilities:

(i) It is expected to be settled in the normal operating cycle;
(ii) It is held primarily for the purpose of trading;
(iii) It is due to be settled within twelve months after the reporting date; or
(iv) The Company does not have an unconditional right to defer settlement of the liability for at least twelve months after the reporting date.

(e) Cash and cash equivalents

Cash consists of cash on hand, checking deposits, and demand deposits. Cash equivalents consist of short-term and highly liquid investments that are readily convertible to known amounts of cash and are subject to an insignificant risk of changes in value. Time deposits that meet the aforesaid criteria and are held for meeting short-term cash commitments instead of helding for investing and other purposes are also classified as cash equivalents.

(f) Financial instruments

Accounts receivables and debt securities issued are initially recognized when they are originated. All other financial assets and financial liabilities are initially recognized when the Company becomes a party to the contractual provisions of the instrument. A financial asset (unless it is an accounts receivable without a significant financing component) or financial liability is initially measured at fair value plus, for an item not at fair value through profit or loss (FVTPL), transaction costs that are directly attributable to its acquisition or issue. An accounts receivable without a significant financing component is initially measured at the transaction price.

(i) Financial assets

On initial recognition, financial assets are classified into the following categories: measured at amortized cost, fair value through other comprehensive income (FVOCI) and fair value through profit or loss (FVTPL). Regular way purchases or sales of financial assets are recognized or derecognized on a trade-date basis.

The Company shall reclassify all affected financial assets only when it changes its business model for managing its financial assets, in which case all affected financial assets are reclassified on the first day of the first reporting period following the change in the business model.

1) Financial assets measured at amortized cost

A financial asset is measured at amortized cost if it meets both of the following conditions and is not designated as at FVTPL:

- it is held within a business model whose objective is to hold assets to collect contractual cash flows; and

- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

These assets are subsequently measured at amortized cost, which is the amount at which the financial asset is measured at initial recognition, plus/minus, the cumulative amortization using the effective interest method, adjusted for any loss allowance. Interest income, foreign exchange gains and losses, as well as impairment, are recognized in profit or loss. Any gain or loss on derecognition is recognized in profit or loss.

2) Financial assets at fair value through other comprehensive income (Financial assets at "FVOCI" )

A debt investment is measured at FVOCI if it meets both of the following conditions and is not designated as at FVTPL:

- it is held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets; and

- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

On initial recognition of an equity investment that is not held for trading, the Company may irrevocably elect to present subsequent changes in the investment's fair value in other comprehensive income. This election is made on an instrument-by-instrument basis.

Debt investments at FVOCI are subsequently measured at fair value. Interest income calculated using the effective interest method, foreign exchange gains and losses and impairment are recognized in profit or loss. Other net gains and losses are recognized in other comprehensive income. On derecognition, gains and losses accumulated in other comprehensive income are reclassified to profit or loss.

Equity investments at FVOCI are subsequently measured at fair value. Dividends are recognized as income in profit or loss unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognized in other comprehensive income. On derecognition, gains and losses accumulated in other comprehensive income are reclassified to retained earnings instead of profit or loss.

Dividend income derived from equity investments is recognized in profit or loss on the date on which the Company's right to receive payment is established, which in the case of quoted securities is normally the ex-dividend date.

3) Financial assets at fair value through profit or loss (Financial assets at "FVTPL")

All financial assets not classified as amortized cost or FVOCI described as above are measured at FVTPL, including derivative financial assets. On initial recognition, the Company may irrevocably designate a financial asset, which meets the requirements to be measured at amortized cost or at FVOCI, as at FVTPL if doing so eliminates or significantly reduces an accounting mismatch that would otherwise arise.

These assets are subsequently measured at fair value. Net gains and losses, including any interest or dividend income, are recognized in profit or loss.

4) Assessment whether contractual cash flows are solely payments of principal and interest

For the purposes of this assessment, ‘principal’ is defined as the fair value of the financial assets on initial recognition. ‘Interest’ is defined as consideration for the time value of money and for the credit risk associated with the principal amount outstanding during a particular period of time and for other basic lending risks and costs, as well as a profit margin.

In assessing whether the contractual cash flows are solely payments of principal and interest, the Company considers the contractual terms of the instrument. This includes assessing whether the financial asset contains a contractual term that could change the timing or amount of contractual cash flows such that it would not meet this condition. In making this assessment, the Company considers:

- contingent events that would change the amount or timing of cash flows;
- terms that may adjust the contractual coupon rate, including variable rate features;
- prepayment and extension features; and
- terms that limit the Company’s claim to cash flows from specified assets (e.g. non-recourse features)

5) Impairment of financial assets

The Company recognizes loss allowances for expected credit losses on financial assets measured at amortized cost (including cash and cash equivalents, notes and accounts receivable, other receivables and other financial assets).

The Company measures loss allowances at an amount equal to lifetime expected credit loss (ECL), except for the following which are measured as 12-month ECL:

- bank balances for which credit risk (i.e. the risk of default occurring over the expected life of the financial instrument) has not increased significantly since initial recognition.

Loss allowance for accounts receivables are always measured at an amount equal to lifetime ECL.

Lifetime ECLs are the ECLs that result from all possible default events over the expected life of a financial instrument. 12-month ECLs are the portion of ECLs that result from default events that are possible within the 12 month after the reporting date (or a shorter period if the expected life of the instrument is less than 12 months).

The maximum period considered when estimating ECLs is the maximum contractual period over which the Company is exposed to credit risk.

When determining whether the credit risk of a financial asset has increased significantly since initial recognition and when estimating ECL, the Company considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes both quantitative and qualitative information and analysis based on the Company's historical experience and informed credit assessment as well as forward-looking information.

ECLs are probability-weighted estimate of credit losses. Credit losses are measured as the present value of all cash shortfalls (i.e. the difference between the cash flows due to the Company in accordance with the contract and the cash flows that the Company expects to receive). ECLs are discounted at the effective interest rate of the financial asset.

Loss allowances for financial assets measured at amortized cost are deducted from the gross carrying amount of the assets.

The gross carrying amount of a financial asset is written off, either partially or in full, to the extent that there is no realistic prospect of recovery. The Company individually makes an assessment with respect to the timing and amount of write-off based on whether there is a reasonable expectation of recovery. The Company expects no significant recovery from the amount written off. However, financial assets that are written off could still be subject to enforcement activities in order to comply with the Company's procedures for recovery of amounts due.

6) Derecognition of financial assets

The Company derecognizes financial assets when the contractual rights to the cash flows from the financial assets expire, or it transfers the rights to receive the contractual cash flows in a transaction in which substantially all of the risks and rewards of ownership of the financial assets are transferred or in which the Company neither transfers nor retains substantially all of the risks and rewards of ownership and it does not retain control of the financial assets.

The Company enters into transactions whereby it transfers assets recognized in its statement of balance sheet, but retains either all or substantially all of the risks and rewards of the transferred assets. In these cases, the transferred assets are not derecognized.

(ii) Financial liabilities

1) Financial liabilities

Financial liabilities are classified as measured at amortized cost or FVTPL. A financial liability is classified as at FVTPL if it is classified as held-for-trading, it is a derivative or it is designated as such on initial recognition. Financial liabilities at FVTPL are measured at fair value and net gains and losses, including any interest expense, are recognized in profit or loss.

Other financial liabilities are subsequently measured at amortized cost using the effective interest method. Interest expense and foreign exchange gains and losses are recognized in profit or loss. Any gain or loss on derecognition is also recognized in profit or loss.

2) Derecognition of financial liabilities

The Company derecognizes a financial liability when its contractual obligation has been fulfilled or cancelled, or has expired. The Company also derecognizes a financial liability when its terms are modified and the cash flows of the modified liability are substantially different, in which case a new financial liability based on the modified terms is recognized at fair value.

The difference between the carrying amount of a financial liability derecognized and the consideration paid (including any non-cash assets transferred or liabilities assumed) is recognized in profit or loss.

3) Offsetting of financial assets and liabilities

Financial assets and financial liabilities are offset and the net amount presented in the statement of balance sheet when, and only when, the Company currently has a legally enforceable right to set off the amounts and it intends either to settle them on a net basis or to realize the asset and settle the liability simultaneously.

(iii) Derivative financial instruments

Derivative financial instruments such as foregin currency forward contracts are held to hedge the Company's foreign currency exposures. Derivatives are recognized initially at fair value, and attributable transaction costs are recognized in profit or loss as incurred. Subsequent to initial recognition, derivatives are measured at fair value, and changes therein are recognized in profit or loss. If the valuation of a derivative instrument results in a positive fair value, it is classified as a financial asset; otherwise, it is classified as a financial liability.

(g) Inventories

Inventories are measured at the lower of cost and net realizable value. The cost of inventories is calculated based on the weighted-average method and includes expenditure incurred in acquiring the inventories, production or conversion costs, and other costs incurred in bringing them to the location and condition ready for sale. Fixed manufacturing overhead is allocated to finished products and work in process based on the higher of normal capacity or actual capacity; variable manufacturing overhead is allocated based on the actual capacity of machinery and equipment. Net realizable value represents the estimated selling price in the ordinary course of business, less all estimated costs of completion and necessary selling expenses.

(h) Investment in associates

Associates are those entities in which the Company has significant influence, but not control or joint venture, over the financial and operating policies.

Investments in associates are accounted for using the equity method and are recognized initially at cost, plus, any transaction costs. The carrying amount of the investment in associates includes goodwill identified on acquisition, net of any accumulated impairment losses. When necessary, the entire carrying amount of the investment (including goodwill) will be tested for impairment as a single asset by comparing its recoverable amount with its carrying amount. Any impairment loss recognized forms part of the carrying amount of the investment. Any reversal of that impairment loss is recognized to the extent that the recoverable amount of the investment subsequently increases.

The Company's financial statements include the Company's share of the profit or loss and other comprehensive income of those associates, after adjustments to align their accounting policies with those of the Company, from the date on which significant influence commences until the date on which significant influence ceases. When changes in an associate's equity are not recognized in profit or loss or other comprehensive income of the associate, and such changes do not affect the Company's ownership percentage of the associate, the Company recognizes the change in ownership interests of its associate as "capital surplus" in proportion to its ownership.

Gains and losses resulting from transactions between the Company and an associate are recognized only to the extent of unrelated Company's interests in the associate.

When the Company's share of losses in an associate equals or exceeds its interest in the associate, the recognition of further losses is discontinued. Additional losses are provided for, and a liability is recognized, only to the extent that the Company has incurred legal or constructive obligations or made payments on behalf of the associate.

When an associate issues new shares and the Company does not subscribe to the new shares in proportion to its original ownership percentage, the Company's interest in the associate's net assets will be changed. The change in the equity interest is adjusted through the capital surplus and investment accounts. If the Company's capital surplus is insufficient to offset the adjustment to investment accounts, the difference is charged as a reduction of retained earnings. If the Company's interest in an associate is reduced due to the additional subscription to the shares of associate by other investors, the proportionate amount of the gains or losses previously recognized in other comprehensive income in relation to that associate shall be reclassified to profit or loss on the same basis as would be required if the associate had directly disposed of the related assets or liabilities.

(i) Investment in subsidiaries

When preparing the parent-company-only financial statements, investment in subsidiaries which are controlled by the Company is accounted for using equity method. Under the equity method, the net income, other comprehensive income and equity in the parent-company-only financial statement are the same as those attributable to shareholders of the Company in the consolidated financial statements.

Changes in the Company's ownership interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions.

(j) Property, plant and equipment

(i) Recognition and measurement

Items of property, plant and equipment are measured at cost, which includes capitalized borrowing costs, less accumulated depreciation and accumulated impairment losses.

If significant parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate items (major components) of property, plant and equipment.

Any gain or loss on disposal of an item of property, plant and equipment is recognized in profit or loss.

(ii) Subsequent expenditure

Subsequent expenditure is capitalized only if it is probable that future economic benefits associated with the expenditure will flow to the Company.

(iii) Depreciation

Depreciation is calculated on the cost of an asset less its residual value and is recognized in profit or loss on a straight-line basis over the estimated useful lives of each component of an item of property, plant and equipment. Land is not depreciated.

The estimated useful lives for property, plant and equipment are as follows: buildings and improvements: 6 to 47 years; machinery and equipment: 2 to 11 years; and other equipment: 3 to 15 years.

Depreciation methods, useful lives, and residual values are reviewed at each reporting date, with the effect of any changes in estimate accounted for on a prospective basis.

(k) Leases

<u>Applicable from January 1, 2019</u>

(i) Identifying a lease

At inception of a contract, the Company assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. To assess whether a contract conveys the right to control the use of an identified asset, the Company assesses whether:

1) the contract involves the use of an identified asset – this may be specified explicitly or implicitly, and should be physically distinct or represent substantially all of the capacity of a physically distinct asset. If the supplier has a substantive substitution right, then the asset is not identified; and

2) the Company has the right to obtain substantially all of the economic benefits from use of the asset throughout the period of use; and

3) the Company has the right to direct the use of the asset if either:

- The Company has the right to direct the use of the asset when it has the decision-making rights that are most relevant to change how and for what purpose the asset is used; or
- In rare cases where the decision about how and for what purpose the asset is predetermined; and
  - the Company has the right to operate the asset and the providers do not have the right to vary; or
  - the Company designed the asset in a way that predetermines how and for what purpose it will be used.

(ii) As a leasee

The Company recognizes a right-of-use asset and a lease liability at the lease commencement date. The right-of-use asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs to dismantle and remove the underlying asset or to restore the underlying asset or the site on which it is located, less any lease incentives received.

The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the earlier of the end of the useful life of the right-of-use asset or the end of the lease term. In addition, the right-of-use asset is periodically reduced by impairment losses, if any, and adjusted for certain remeasurements of the lease liability.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the interest rate implicit in the lease or, if that rate cannot be reliably determined, the Company's incremental borrowing rate. Generally, the Company uses its incremental borrowing rate as the discount rate.

Lease payments included in the measurement of the lease liability comprise the following:

- fixed payments, including in-substance fixed payments;
- variable lease payments that depend on an index or a rate, initially measured using the index or rate as at the commencement date.

The lease liability is measured at amortized cost using the effective interest method. It is remeasured when:

- there is a change in future lease payments arising from the change in an index or rate; or
- there is a change of its assessment on whether it will exercise an extension or termination option; or
- there is any lease modifications in lease subject, scope of the lease or other terms.

When the lease liability is remeasured, other than lease modifications, a corresponding adjustment is made to the carrying amount of the right-of-use asset, or in profit and loss if the carrying amount of the right-of-use asset has been reduced to zero.

When the lease liability is remeasured to reflect the partial or full termination of the lease for lease modifications that decrease the scope of the lease, the Company accounts for the remeasurement of the lease liability by decreasing the carrying amount of the right-of-use asset to reflect the partial or full termination of the lease, and recognize the difference in profit or loss relating to the partial or full termination of the lease.

The Company presents right-of-use assets that do not meet the definition of investment properties, and lease liabilities as a separate line item respectively in the balance sheets.

The Company has elected not to recognize right-of-use assets and lease liabilities for short-term leases of office equipments. The Company recognizes the lease payments associated with these leases as an expense on a straight-line basis over the lease term.

<u>Applicable before January 1, 2019</u>

(i) The Company as lessor

Lease income from an operating lease is recognized in profit or loss on a straight-line basis over the lease term. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognized as expense over the lease term on a straight-line basis.

(ii) The Company as lessee

Payments made under an operating lease (excluding insurance and maintenance expenses) are charged to expense over the lease term on a straight-line basis.

(l) Intangible assets

The Company’s intangible assets are carried at cost less accumulated amortization and accumulated impairment losses. Amortization is recognized in profit or loss using the straight-line method over the following estimated useful lives: acquired computer software: 2 to 7 years; royalties for the use of patents: 13 to 17 years.

Amortization methods, useful lives and residual values are reviewed at each reporting date and adjusted if appropriate.

(m) Impairment of non-financial assets

Non-financial assets other than inventories, deferred income tax assets, and assets arising from employee benefits are reviewed for impairment at each reporting date to determine whether there is any indication of impairment. When there exists an indication of impairment for an asset, the recoverable amount of the asset is estimated. If the recoverable amount of an individual asset cannot be determined, the Company estimates the recoverable amount of the cash-generating units (“CGU”) to which the asset has been allocated.

The recoverable amount for an individual asset or a CGU is the higher of its fair value less costs to sell or its value in use. When the recoverable amount of an asset or a CGU is less than its carrying amount, the carrying amount of the asset or CGU is reduced to its recoverable amount, and an impairment loss is recognized in profit or loss immediately.

The Company assesses at each reporting date whether there is any evidence that an impairment loss recognized in prior periods for an asset other than goodwill may no longer exist or may have decreased. If so, an impairment loss recognized in prior periods for an asset other than goodwill is reversed, and the carrying amount of the asset or CGU is increased to its revised estimate of recoverable amount. The increased carrying amount shall not exceed the carrying amount (net of amortization or depreciation) that would have been determined had no impairment loss been recognized in prior years.

(n) Provisions

Provisions are recognized when the Company has a present obligation (legal or constructive) as a result of a past event, it is probable that the Company will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation.

(i) Warranties

A provision for warranties is recognized when the underlying products or services are sold. This provision reflects the historical warranty claim rate and the weighting of all possible outcomes against their associated probabilities.

(ii) Sales return and allowances provision

A provision for sales returns and allowances is recognized when the underlying products are sold. This provision is estimated based on historical sales return and allowances data.

(o) Revenue recognition

Revenue is measured based on the consideration to which the Company expects to be entitled in exchange for transferring goods to a customer. The Company recognizes revenue when it satisfies a performance obligation by transferring control of a good to a customer.

(i)Sale of goods

The Company recognizes revenue when control of the goods has been transferred to the customer, being when the goods have been delivered to the customer, and there is no unfulfilled obligation that could affect the customer’s acceptance of the goods. Delivery occurs when the customer has accepted the goods in accordance with the terms of sales, the risks of obsolescence and loss have been transferred to the customer, and the Company has objective evidence that all criteria for acceptance have been satisfied.

A receivable is recognized when the goods are delivered as this is the point in time that the Company has a right to an amount of consideration that is unconditional.

(ii) Financing components

The Company does not expect that the period between the transfer of the promised goods to the customer and payment by the customer exceeds one year. As a consequence, the Company does not adjust any of the transaction prices for the time value of money.

(p) Employee benefits

(i) Defined contribution plans

Obligations for contributions to defined contribution pension plans are expensed during the year in which employees render services.

(ii) Defined benefit plans

The Company's net obligation in respect of defined benefit plans is calculated separately for each plan by estimating the amount of future benefit that employees have earned in the current and prior periods, discounting that amount and deducting the fair value of any plan assets. The discount rate for calculating the present value of the defined benefit obligation refers to the interest rate of high-quality government bonds that are denominated in the currency in which the benefits will be paid, and that have terms to maturity approximating the term of the related pension obligation. The defined benefit obligation is calculated annually by qualified actuaries using the projected unit credit method.

When the benefits of a plan are improved, the expense related to the increased obligations resulting from the services rendered by employees in the past years are recognized in profit or loss immediately.

The remeasurements of the net defined benefit liability (asset) comprise (i) actuarial gains and losses; (ii) return on plan assets, excluding amounts included in net interest on the net defined benefit liability (asset); and (iii) any change in the effect of the asset ceiling, excluding amounts included in net interest on the net defined benefit liability (asset). The remeasurements of the net defined benefit liabilities (asset) are recognized in other comprehensive income and then transferred to retained earnings.

The Company recognizes gains or losses on the curtailment or settlement of a defined benefit plan when the curtailment or settlement occurs. The gain or loss on curtailment or settlement comprises any resulting change in the fair value of plan assets and any change in the present value of the defined benefit obligation.

(iii) Short-term employee benefits

Short-term employee benefit obligations are measured on an undiscounted basis and are expensed during the period in which employees render services. A liability is recognized for the amount expected to be paid under short-term cash bonus or profit-sharing plans if the Company has a present legal or constructive obligation to make such payments as a result of past service provided by the employees, and the obligation can be estimated reliably.

(q) Income taxes

Income taxes comprise current taxes and deferred taxes. Current and deferred taxes are recognized in profit or loss unless they relate to items recognized directly in equity or other comprehensive income.

Current taxes comprise the expected tax payables or receivables on the taxable profits (losses) for the year and any adjustment to the tax payable or receivable in respect of previous years. The amount of current tax payables or receivables are the best estimate of the tax amount expected to be paid or received that reflects uncertainty related to income taxes, if any. It is measured using tax rates enacted or substantively enacted at the reporting date.

Deferred income taxes are recognized in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. Deferred taxes are not recognized for:

(i) Temporary differences on the initial recognition of assets or liabilities in a transaction that is not a business combination and that affects neither accounting nor taxable profit (losses) at the time of transaction;

(ii) Temporary differences related to investments in subsidiaries and associates to the extent that the Company is able to control the timing of the reversal of the temporary differences and it is probable that they will not reverse in the foreseeable future; and

(iii) Taxable temporary differences arising on the initial recognition of goodwill.

Deferred taxes are measured at tax rates that are expected to be applied to temporary differences when they reverse, using tax rates enacted or substantively enacted at the reporting date, and reflect uncertainty related to income taxes, if any.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets against current tax liabilities and when the deferred tax assets and liabilities relate to income taxes levied by the same tax authority on either the same taxable entity or different taxable entities where there is an intention to settle the balances on a net basis.

Deferred tax assets are recognized for unused tax losses, tax credits, and deductible temporary differences to the extent that it is probable that future taxable profits will be available against which they can be utilized. Deferred tax assets are reviewed at each reporting date and reduced to the extent that it is no longer probable that the related tax benefit will be realized; such reductions are reversed when the probability of future taxable profits improves.

(r) Earnings per share ("EPS")

The basic and diluted EPS attributable to shareholders of the Company are disclosed in the parent-company-only financial statements. Basic EPS is calculated by dividing net income attributable to shareholders of the Company by the weighted-average number of common shares outstanding during the year. Diluted EPS is calculated as the net income attributable to shareholders of the Company divided by the weighted-average number of common shares outstanding during the year after adjustment for the effects of all potentially dilutive common shares such as employee compensation.

(s) Operating segments

The Company discloses the operating segment information in the consolidated financial statements. Therefore, the Company does not disclose the operating segment information in the parent-company-only financial statements.

## 5. Critical accounting judgments and key sources of estimation uncertainty

The preparation of the parent-company-only financial statements in conformity with the Regulations Governing the Preparation of Financial Reports by Securities Issuers requires management to make judgments, estimates and assumptions that affect the application of the accounting policies and the reported amount of assets, liabilities, income and expenses. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimate is revised and the future periods affected.

Information about assumptions and estimation uncertainties that have a significant risk of resulting in a material adjustment within the next financial year is as follows:

Inventories are measured at the lower of cost or net realizable value. The Company estimates the net realizable value of inventory, taking into account obsolescence and unmarketable items at the reporting date, and then writes down the cost of inventories to net realizable value. The net realizable value of the inventory is mainly determined based on assumptions of future demand within a specific time horizon, which could result in significant adjustments.

Refer to note 6(f) for more details of the valuation of inventories.

## 6. Significant account disclosures

(a) Cash and cash equivalents

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Cash on hand | $ 10 | 45 |
| Demand deposits | 245,859 | 604,886 |
| Time deposits with original maturities less than three months | 175,700 | - |
| | **$ 421,569** | **604,931** |

As of December 31, 2019 and 2018, the time deposits with original maturities of more than three months amounted to $409,700 and $ 0, respectively, which were classified as other financial assets — current.

(b) Financial assets and liabilities at fair value through profit or loss－current

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Financial assets mandatorily measured at fair value through profit or loss－current: | | |
| Foreign currency forward contracts | $ 77 | 454 |
| Open-ended mutual funds | 139,527 | - |
| | $ **139,604** | **454** |
| Financial liabilities held for trading－current: | | |
| Foreign currency forward contracts | $ **(124)** | **(289)** |

Refer to note6 (u) for the detail of the changes in fair value recognized in profit or loss.

The Company entered into derivative contracts to manage foreign currency exchange risk resulting from its operating activities. As of December 31, 2019 and 2018, the derivative financial instruments that did not conform to the criteria for hedge accounting consisted of the following:

| | December 31, 2019 | | | | |
|---|---|---|---|---|---|
| | **Contract amount (in thousands)** | | **Fair value** | **Currency (Sell / Buy)** | **Maturity period** |
| Financial assets－foreign currency forward contracts | JPY | 18,200 | 46 | JPY / TWD | 2020/01/30 |
| | CNY | 6,010 | 31 | CNY/TWD | 2020/01/30~2020/02/27 |
| | | | $ **77** | | |

| | December 31, 2018 | | | | |
|---|---|---|---|---|---|
| | **Contract amount (in thousands)** | | **Fair value** | **Currency (Sell / Buy)** | **Maturity period** |
| Financial assets－foreign currency forward contracts | USD | 6,500 | $ **454** | USD / TWD | 2019/01/04～2019/01/25 |

| | December 31, 2019 | | | | |
|---|---|---|---|---|---|
| | **Contract amount (in thousands)** | | **Fair value** | **Currency (Sell / Buy)** | **Maturity period** |
| Financial liabilities－foreign currency forward contracts | JPY | 23,500 | (38) | JPY / TWD | 2020/01/30~2020/02/27 |
| | CNY | 4,260 | (86) | CNY/TWD | 2020/01/30~2020/02/27 |
| | | | $ **(124)** | | |

| | December 31, 2018 | | | | |
|---|---|---|---|---|---|
| | Contract amount (in thousands) | | Fair value | Currency (Sell / Buy) | Maturity period |
| Financial liabilities－foreign currency forward contracts | JPY | 48,200 | (246) | JPY / TWD | 2019/01/25 |
| | USD | 1,500 | (43) | USD / TWD | 2019/01/04～2019/01/11 |
| | | | $ (289) | | |

(c) Financial assets at fair value through other comprehensive income－non-current

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Equity investments at fair value through other comprehensive income: | | |
| Domestic unlisted stocks | $ 41,748 | 44,520 |

The Company designated the abovementioned investments as at fair value through other comprehensive income because these equity investments represent those investments that the Company intends to hold for long-term strategic purposes.

No strategic investments were disposed for the years ended December 31, 2019 and 2018, and there were no transfers of any cumulative gain or loss within equity relating to these investments.

(d) Notes and accounts receivable

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Notes and accounts receivable | $ 712,165 | 886,908 |
| Accounts receivable from related parties | 170,703 | 171,885 |
| | 882,868 | 1,058,793 |
| Less: loss allowance | (5,293) | (4,270) |
| | $ 877,575 | 1,054,523 |

The Company applies the simplified approach to provide for its expected credit losses, i.e. the use of lifetime expected loss provision for all receivables (including related parties), as well as incorporated forward looking information. The loss allowance provision were determined as follows:

| | December 31, 2019 | | |
|---|---|---|---|
| | Gross carrying amount | Weighted-average loss rate | Loss allowance provision |
| Current | $ 760,971 | 0.0584% | 444 |
| Past due 1-90 days | 119,385 | 1.9575% | 2,337 |
| Past due over 181 days | 2,512 | 100% | 2,512 |
| | $ 882,868 | | 5,293 |

| | December 31, 2018 | | |
|---|---|---|---|
| | Gross carrying amount | Weighted-average loss rate | Loss allowance provision |
| Current | $ 904,431 | 0.0565% | 511 |
| Past due 1-90 days | 151,059 | 0.3019% | 456 |
| Past due over 181 days | 3,303 | 100% | 3,303 |
| | $ 1,058,793 | | 4,270 |

Movements of the loss allowance for notes and accounts receivable (including related parties) were as follows:

| | 2019 | 2018 |
|---|---|---|
| Balance at January 1 (per IAS 39) | $ 4,270 | 2,679 |
| Adjustment on initial application of IFRS 9 | - | 77 |
| Balance at January 1 (per IFRS 9) | 4,270 | 2,756 |
| Impairment losses recognized | 1,729 | 1,514 |
| Write-off | (706) | - |
| Balance at December 31 | $ 5,293 | 4,270 |

(e) Other receivables

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Other receivables | $ 50,287 | 42,725 |
| Other receivables from related parties | - | 189 |
| | $ 50,287 | 42,914 |

There is no loss allowance provision for other receivables (including related parties) on December 31, 2019 and 2018 after the assessment.

(f) Inventories

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Raw materials | $ 424,874 | 500,256 |
| Work in process | 44,603 | 101,616 |
| Finished goods | 434,059 | 513,764 |
| Inventories in transit | 10,362 | 14,309 |
| | $ 913,898 | 1,129,945 |

For the years ended December 31, 2019 and 2018, the amounts of inventories recognized as cost of revenue were as follows:

| | 2019 | 2018 |
|---|---|---|
| Cost of inventories sold | $ 6,030,059 | 7,974,188 |
| Write-downs of inventories | 13,000 | 35,000 |
| | **$ 6,043,059** | **8,009,188** |

The above write-downs of inventories to net realizable value were included in cost of revenue.

(g) Investments accounted for using equity method

A summary of the Company's investments accounted for using the equity method at the reporting date were as follows:

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Subsidiaries | $ 315,092 | 296,630 |
| Associates | - | 884 |
| | **$ 315,092** | **297,514** |

(i) Investments in subsidiaries

Please refer to the consolidated financial statements for the year ended December 31, 2019.

(ii) Investments in associates

| | December 31, 2019 | | December 31, 2018 | |
|---|---|---|---|---|
| **Name of Associates** | **Percentage of voting rights** | **Carrying amount** | **Percentage of voting rights** | **Carrying amount** |
| JoiiUp Technology Inc. | 16.15 % | $ **-** | 16.15 % | **884** |

Aggregate financial information of associates that were not individually material was summarized as follows. The financial information was included in the Company's parent-company-only financial statements.

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| The aggregate carrying amount of associates that were not individually material | **$ -** | **884** |

| | 2019 | 2018 |
|---|---|---|
| Attributable to the Company: | | |
| Net loss | $ (884) | (2,522) |
| Other comprehensive income | - | - |
| Total comprehensive income | **$ (884)** | **(2,522)** |

(h) Property, plant and equipment

The movements of cost, accumulated depreciation and impairment loss of the property, plant and equipment for the years ended December 31, 2019 and 2018 were as follows:

| | Land | Buildings | Machinery and equipment | Other equipment | Equipment to be inspected and construction in progress | Total |
|---|---|---|---|---|---|---|
| Cost: | | | | | | |
| Balance at January 1, 2019 | $ 556,498 | 276,430 | 175,449 | 88,742 | 10,547 | 1,107,666 |
| Additions | - | 8,893 | 4,689 | 3,845 | 8,340 | 25,767 |
| Disposals | - | - | (2,475) | (882) | - | (3,357) |
| Reclassification | - | 13,167 | 4,864 | 142 | (18,173) | - |
| Balance at December 31, 2019 | **$ 556,498** | **298,490** | **182,527** | **91,847** | **714** | **1,130,076** |
| Balance at January 1, 2018 | $ 556,498 | 275,836 | 176,075 | 85,820 | 841 | 1,095,070 |
| Additions | - | 594 | 7,152 | 3,282 | 12,298 | 23,326 |
| Disposals | - | - | (9,243) | (360) | - | (9,603) |
| Reclassification (Note) | - | - | 1,465 | - | (2,592) | (1,127) |
| Balance at December 31, 2018 | **$ 556,498** | **276,430** | **175,449** | **88,742** | **10,547** | **1,107,666** |
| Accumulated depreciation and impairment loss: | | | | | | |
| Balance at January 1, 2019 | $ - | 34,596 | 122,538 | 66,872 | - | 224,006 |
| Depreciation | - | 8,320 | 18,926 | 9,612 | - | 36,858 |
| Disposals | - | - | (2,475) | (527) | - | (3,002) |
| Balance at December 31, 2019 | **$ -** | **42,916** | **138,989** | **75,957** | **-** | **257,862** |
| Balance at January 1, 2018 | $ - | 27,491 | 114,179 | 56,799 | - | 198,469 |
| Depreciation | - | 7,105 | 17,475 | 10,433 | - | 35,013 |
| Disposals | - | - | (9,243) | (360) | - | (9,603) |
| Impairment loss | - | - | 127 | - | - | 127 |
| Balance at December 31, 2018 | **$ -** | **34,596** | **122,538** | **66,872** | **-** | **224,006** |
| Carrying amount: | | | | | | |
| Balance at December 31, 2019 | **$ 556,498** | **255,574** | **43,538** | **15,890** | **714** | **872,214** |
| Balance at December 31, 2018 | **$ 556,498** | **241,834** | **52,911** | **21,870** | **10,547** | **883,660** |

Note: reclassified from property, plant and equipment to other non-current assets.

(i) Right-of-use assets

| | December 31, 2019 |
|---|---|
| Carrying amount: | |
| Buildings | $ 5,764 |
| Other equipments | 8,248 |
| | **$ 14,012** |

| | 2019 |
|---|---|
| Additions | **$ 15,000** |
| Depreciation | |
| Buildings | $ 4,713 |
| Other equipments | 8,490 |
| | **$ 13,203** |

The Company leases office and other equipments under an operating lease for the year ended December 31, 2018, please refer to note 6(n).

(j) Intangible assets

The movements of costs and accumulated amortization of intangible assets for the years ended December 31, 2019 and 2018 were as follows:

| | Computer software | Royalties for the use of patents | Total |
|---|---|---|---|
| Costs: | | | |
| Balance at January 1, 2019 | $ 99,517 | 4,104 | 103,621 |
| Additions | 4,141 | - | 4,141 |
| Reclassification (Note) | 3,962 | - | 3,962 |
| Balance at December 31, 2019 | **$ 107,620** | **4,104** | **111,724** |
| Balance at January 1, 2018 | $ 48,131 | 4,104 | 52,235 |
| Additions | 45,313 | - | 45,313 |
| Reclassification (Note) | 6,073 | - | 6,073 |
| Balance at December 31, 2018 | **$ 99,517** | **4,104** | **103,621** |
| Accumulated amortization: | | | |
| Balance at January 1, 2019 | $ 36,879 | 718 | 37,597 |
| Amortization | 11,775 | 222 | 11,997 |
| Balance at December 31, 2019 | **$ 48,654** | **940** | **49,594** |
| Balance at January 1, 2018 | $ 27,581 | 496 | 28,077 |
| Amortization | 9,298 | 222 | 9,520 |
| Balance at December 31, 2018 | **$ 36,879** | **718** | **37,597** |
| Carrying amount: | | | |
| Balance at December 31, 2019 | **$ 58,966** | **3,164** | **62,130** |
| Balance at December 31, 2018 | **$ 62,638** | **3,386** | **66,024** |

Note: reclassified from other non-current assets to intagible assets.

The amortization of intangible assets is included in the following line items of the statement of comprehensive income:

| | 2019 | 2018 |
|---|---|---|
| Cost of revenue | **$ 2,175** | **2,211** |
| Operating expenses | **$ 9,822** | **7,309** |

(k) Short-term borrowings

The details of short-term borrowings were as follows:

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Unsecured bank loans | $ 74,950 | 138,218 |
| Unused credit facilities | $ 2,299,450 | 2,491,803 |
| Interest rate interval | 2.43% | 3.08% |

(l) Lease liabilities

| | December 31, 2019 |
|---|---|
| Current | $ 2,784 |
| Non-current | $ 10,647 |

For the maturity analysis, please refer to note 6(w).

The amounts recognized in profit or loss were as follows:

| | 2019 |
|---|---|
| Interest on lease liabilities | $ 345 |
| Expenses relating to short-term leases | $ 1,194 |

The amounts recognized in the statement of cash flows for the Company was as follows:

| | 2019 |
|---|---|
| Total cash outflow for leases | $ 15,484 |

(i) Real estate leases

The Company leases buildings for its office. The leases of office typically run for a period of two to seven years.

(ii) Other leases

The Company leases office and transportation equipments, with lease terms of one to five years. In addition, the Company leases some office equipments with contract terms within one year. These leases are short-term and the Company has elected not to recognize right-of-use assets and lease liabilities for these leases.

(m) Provisions

| | Warranties | Sales returns and allowances | Total |
|---|---|---|---|
| Balance at January 1, 2019 | $ 7,353 | 5,272 | 12,625 |
| Provisions made | 416 | 52,642 | 53,058 |
| Amount utilized | (1,474) | (52,524) | (53,998) |
| Balance at December 31, 2019 | **$ 6,295** | **5,390** | **11,685** |
| Balance at January 1, 2018 | $ 9,965 | 5,730 | 15,695 |
| Provisions made | 252 | 49,322 | 49,574 |
| Amount utilized | (2,864) | (49,780) | (52,644) |
| Balance at December 31, 2018 | **$ 7,353** | **5,272** | **12,625** |

(i) Warranties

The provision for warranties is made based on the number of units sold currently under warranty, historical rates of warranty claim on those units, and cost per claim to satisfy the warranty obligation. The Company reviews the estimation basis on an ongoing basis and revises it when appropriate.

(ii) Sales returns and allowances

Expected sales returns and allowances are estimated based on historical experience.

(n) Operating lease

(i) Lessee

Future minimum lease payments under operating leases is as follow:

| | December 31, 2018 |
|---|---|
| Within 1 year | $ 9,548 |
| 1 to 5 years | 3,502 |
| | **$ 13,050** |

The Company leases its offices and other eauipment under operating leases. The leases typically run for a period of 1 to 3 years. Lease payments are paid based on the terms of the lease contracts.

In 2018, the rental expense of operating leases, amounted to $14,892 was recognized in cost of revenue and operating expenses.

(ii) Lessor

The Company leased its offices to others under operating leases. In 2018, the rental income amounted to $3,156.

(o) Employee benefits

(i) Defined benefit plans

The reconciliations between the present value of defined benefit obligations and the net defined benefit liabilities for defined benefit plans were as follows:

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Present value of defined benefit obligations | $ 64,056 | 60,759 |
| Fair value of plan assets | (36,188) | (35,189) |
| | 27,868 | 25,570 |
| Effects of the asset ceiling | - | - |
| Net defined benefit liabilities | **$ 27,868** | **25,570** |

The Company makes defined benefit plan contributions to the pension fund account at Bank of Taiwan that provides pension benefits for its employees upon retirement. The Company also established pension funds in accordance with the Regulations Governing the Management, Investment, and Distribution of the Employees' Retirement Fund Established by a Profit-seeking Enterprise, which are deposited monthly in the designated financial institutions. The plans entitle a retired employee to receive a payment based on years of service and average salary for the six months prior to the employee's retirement.

1) Composition of plan assets

In accordance with the requirements of the Labor Standards Law, the Company's pension fund account at Bank of Taiwan is managed and administered by the Bureau of Labor Funds of the Ministry of Labor (the Bureau of Labor Funds). According to the Regulations for Revenues, Expenditures, Safeguard and Utilization of the Labor Retirement Fund, with regard to the utilization of the Fund, minimum earnings shall be no less than the earnings attainable from two-year time deposits, with interest rates offered by local banks.

As of December 31, 2019 and 2018, the Company's labor pension fund account balance at Bank of Taiwan amounted to $36,188 and $35,189, respectively. Please refer to the website of the Bureau of Labor Funds for information on the labor pension fund assets including the asset portfolio and yield of the fund.

2) Movements in present value of defined benefit obligations

The movements in present value of defined benefit obligations of the Company were as follows:

| | | 2019 | 2018 |
|---|---|---|---|
| Defined benefit obligations at January 1 | $ | 60,759 | 56,350 |
| Current service costs and interest expense | | 916 | 915 |
| Remeasurement on the net defined benefit liabilities (assets) | | | |
| —Actuarial loss arising from changes in financial assumptions | | 2,392 | 2,383 |
| —Actuarial loss arising from experience adjustments | | 1,024 | 1,643 |
| Benefits paid by the plan | | (1,035) | (532) |
| Defined benefit obligations at December 31 | **$** | **64,056** | **60,759** |

3) Movements of fair value of plan assets

The movements of the fair value of plan assets of the Company were as follows:

| | | 2019 | 2018 |
|---|---|---|---|
| Fair value of plan assets at January 1 | $ | 35,189 | 33,991 |
| Interest income | | 486 | 554 |
| Remeasurement on the net defined benefit liabilities (assets) | | | |
| —Return on plan assets (excluding current interest expense) | | 1,124 | 819 |
| Contributions by the employer | | 424 | 357 |
| Benefits paid by the plan | | (1,035) | (532) |
| Fair value of plan assets at December 31 | **$** | **36,188** | **35,189** |

4) Changes in the effect of the asset ceiling

There was no effect of the asset ceiling.

5) Expenses recognized in profit or loss

The expenses recognized in profit or loss were as follows:

| | 2019 | 2018 |
|---|---|---|
| Current service costs | $ 81 | - |
| Net interest expense on the net defined benefit liability | 349 | 361 |
| | **$ 430** | **361** |
| Cost of revenue | $ 139 | 107 |
| Selling expenses | 135 | 118 |
| Administrative expenses | 91 | 85 |
| Research and development expenses | 65 | 51 |
| | **$ 430** | **361** |

6) Remeasurement of the net defined benefit liabilities recognized in other comprehensive income

The remeasurement of the net defined benefit liabilities recognized in other comprehensive income were as follows:

| | 2019 | 2018 |
|---|---|---|
| Cumulative amount at January 1 | $ 27,344 | 24,137 |
| Recognized during the period | 2,292 | 3,207 |
| Cumulative amount at December 31 | **$ 29,636** | **27,344** |

7) Actuarial assumptions

The principal assumptions of the actuarial valuation were as follows:

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Discount rate | 1.125 % | 1.375 % |
| Future salary increases rate | 3.000 % | 3.000 % |

The Company expects to make contribution of $430 to the defined benefit plans in the year following December 31, 2019.

The weighted average duration of the defined benefit plans is 16.67 years.

8) Sensitivity analysis

When calculating the present value of the defined benefit obligations, the Company uses judgments and estimations to determine the actuarial assumptions for each measurement date, including discount rates, employee turnover rates and future salary changes. Any changes in the actuarial assumptions may significantly impact the amount of the defined benefit obligations.

The following table summarizes the impact of a change in the assumptions on the present value of the defined benefit obligation on December 31, 2019 and 2018.

| | Increase (decrease) in present value of defined benefit obligations | |
|---|---|---|
| | **0.25% Increase** | **0.25% Decrease** |
| December 31, 2019 | | |
| Discount rate | (2,392) | 2,498 |
| Future salary change rate | 2,424 | (2,319) |
| December 31, 2018 | | |
| Discount rate | (2,383) | 2,486 |
| Future salary change rate | 2,409 | (2,318) |

Each sensitivity analysis considers the change in one assumption at a time, leaving the other assumptions unchanged. This approach shows the isolated effect of changing one individual assumption but does not take into account that some assumptions are related. The method used to carry out the sensitivity analysis is the same as the calculation of the net defined benefit liabilities recognized in the balance sheets.

In 2019, the method and assumptions used to carry out the sensitivity analysis was the same as in the prior year.

(ii) Defined contribution plans

The Company contributes monthly an amount equal to 6% of each employee’s monthly wages to the employee’ s individual pension fund account at the Bureau of Labor Insurance in accordance with the provisions of the Labor Pension Act. Under this defined contribution plan, the Company has no legal or constructive obligation to pay additional amounts after contributing a fixed amount to the Bureau of the Labor Insurance.

For the years ended December 31, 2019 and 2018, the Company recognized pension expenses of $18,142 and $17,228, respectively, in relation to the defined contribution plans.

(p) Income taxes

According to the amendments to the "Income Tax Act” enacted by the office of the President of the Republic of China (Taiwan) on February 7, 2018, the corporate income tax rate was adjusted from 17% to 20% starting from 2018.

(i) The components of income tax expense were as follows:

| | | 2019 | 2018 |
|---|---|---|---|
| Current income tax expense | | | |
| Current period | $ | 89,938 | 101,114 |
| Adjustments for prior years | | (4,339) | 911 |
| | | 85,599 | 102,025 |
| Deferred income tax benefit (expense) | | | |
| Origination and reversal of temporary differences | | 4,416 | (11,111) |
| Adjustments in tax rate | | - | (11,239) |
| | | 4,416 | (22,350) |
| Income tax expense | $ | **90,015** | **79,675** |

The components of income tax benefit recognized in other comprehensive income were as follows:

| | | 2019 | 2018 |
|---|---|---|---|
| Items that will not be reclassified subsequently to profit or loss: | | | |
| Remeasurement of defined benefit plans | $ | **458** | **641** |

Reconciliation of income tax expense and income before income tax were as follows:

| | | 2019 | 2018 |
|---|---|---|---|
| Income before income tax | $ | **466,657** | **438,514** |
| Income tax using the Company’s statutory tax rate | $ | 93,331 | 87,703 |
| Adjustments in tax rate | | - | (11,239) |
| Investment tax credits | | (4,233) | (3,500) |
| Changes in unrecognized temporary differences | | (2,496) | (8,339) |
| Prior-year adjustments | | (4,339) | 911 |
| Surtax on undistributed earnings | | 2,625 | 8,419 |
| Others | | 5,127 | 5,720 |
| | $ | **90,015** | **79,675** |

(ii) Deferred income tax assets and liabilities

1) Unrecognized deferred income tax assets and liabilities

| | | December 31, 2019 | December 31, 2018 |
|---|---|---|---|
| Unrecognized deferred income tax assets: | | | |
| Aggregate deductible temporary differences associated with investments in subsidiaries | $ | 22,301 | 22,801 |
| Deductible temporary differences | | 788 | 788 |
| | $ | **23,089** | **23,589** |

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Unrecognized deferred income tax liabilities: | | |
| Aggregate taxable temporary differences associated with investments in subsidiaries | $ 49,613 | 47,617 |

As the Company is able to control the timing of the reversal of the temporary differences associated with investments in its subsidiaries as of December 31, 2019 and 2018, and Management believes that it is probable that the temporary differences will not reverse in the foreseeable future, such temporary differences are not recognized as deferred income tax assets and liabilities.

2) Recognized deferred income tax assets and liabilities

Changes in the amount of deferred income tax assets and liabilities were as follows:

Deferred income tax assets:

| | Defined benefit plans | Provision for inventory obsolescence | Warranty provision | Unrealized impairment loss on financial assets | Others | Total |
|---|---|---|---|---|---|---|
| **Balance at January 1, 2019** | $ 6,421 | 53,873 | 1,471 | 10,000 | 17,359 | 89,124 |
| Recognized in profit or loss | (1,305) | 2,600 | (212) | - | (4,623) | (3,540) |
| Recognized in other comprehensive income | 458 | - | - | - | - | 458 |
| **Balance at December 31, 2019** | **$ 5,574** | **56,473** | **1,259** | **10,000** | **12,736** | **86,042** |
| **Balance at January 1, 2018** | $ 4,913 | 39,842 | 1,694 | 8,500 | 11,148 | 66,097 |
| Recognized in profit or loss | - | 7,000 | (522) | - | 4,516 | 10,994 |
| Recognized in other comprehensive income | 641 | - | - | - | - | 641 |
| Adjustmens in tax rate | 867 | 7,031 | 299 | 1,500 | 1,695 | 11,392 |
| **Balance at December 31, 2018** | **$ 6,421** | **53,873** | **1,471** | **10,000** | **17,359** | **89,124** |

Deferred income tax liabilities:

| | Others |
|---|---|
| **Balance at January 1, 2019** | $ 903 |
| Recognized in profit or loss | 876 |
| **Balance at December 31, 2019** | **$ 1,779** |
| **Balance at January 1, 2018** | $ 867 |
| Recognized in profit or loss | (117) |
| Adjustmens in tax rate | 153 |
| **Balance at December 31, 2018** | **$ 903** |

(iii) The Company’s income tax returns for the years through 2016 have been assessed by the R.O.C. income tax authorities.

(q) Capital and other equity

(i) Common stock

As of December 31, 2019 and 2018, the Company's authorized shares of common stock consisted of 200,000 thousand shares, of which 100,898 thousand shares were issued and outstanding. The par value of the Company's common stock is $10 (dollars) per share. The Company has reserved 15,000 thousand shares for the exercise of employee stock options.

In order to enrich the necessary working capital in response to develop long-term operations, the Company's temporary shareholders' meeting held on December 29, 2014 resolved to raise capital through private placement. The effective date of the capital increase was January 21, 2015, and the issuance of common stock has been registered with the government authorities on January 28, 2015. Details are summarized below:

1) Shares issued: 15,000 thousand shares of common stock

2) Issue price: $25.38 (dollars) per share

3) Total proceeds received by the Company: $380,700

4) Investor of the private placement: Phison Electronics Corporation

5) Rights and obligations: All the rights and obligations of shares of common stock through the private placement (the "Private Placement Shares") shall be the same as those of shares of common stock issued and outstanding. However, except for selling to specific investors defined in Article 43-8 of the Securities and Exchange Act, the Private Placement Shares cannot be resold during a three-year period from delivery date. After three years from delivery date, according to the Securities and Exchange Act, and Directions for Public Companies Conducting Private Placements of Securities, the Company shall obtain a letter issued by Taiwan Stock Exchange Corporation ("TWSE") acknowledging that the Private Placement Shares have met the standards for TWSE listing before it may file with FSC for retroactive handling of public issuance procedures. Thereafter, the Company can apply for listing in TWSE of Private Placement Shares.

6) Others: The Company recognized capital surplus of $230,700, resulting from the issuance price of Private Placement Shares in excess of common stock's par value.

On May 8, 2018, the public issuance of abovementioned Private Placement Shares was approved by and registered with FSC.

(ii) Capital surplus

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Paid-in capital in excess of par value | $ 331,707 | 331,707 |
| Employee stock options | 12,901 | 12,901 |
| Treasury stock transactions | 3,781 | 3,781 |
| Changes in equity of associates accounted for using equity method | 11,521 | 11,521 |
| | **$ 359,910** | **359,910** |

Pursuant to the Company Act, any realized capital surplus is initially used to cover an accumulated deficit, and the balance, if any, could be transferred to common stock as stock dividends based on the original shareholding ratio or distributed as cash dividends based on a resolution approved by the shareholders. Realized capital surplus includes the premium derived from the issuance of shares of stock in excess of par value and donations from shareholders received by the Company. In accordance with the Regulations Governing the Offering and Issuance of Securities by Securities Issuers, distribution of stock dividends from capital surplus in any one year shall not exceed 10% of paid-in capital.

(iii) Retained earnings

1) Legal reserve

According to the Company Act, the Company must retain 10% of its annual income as a legal reserve until such retention equals the amount of paid-in capital. If a company has no accumulated deficit, it may, pursuant to a resolution approved by the shareholders, distribute its legal reserve to its shareholders by issuing new shares or by distributing cash for the portion in excess of 25% of the paid-in capital.

2) Special reserve

In accordance with Ruling No. 1010012865 issued by the FSC on April 6, 2012, a special reserve equal to the total amount of items that were accounted for as deductions from shareholders' equity was set aside from current and prior-year earnings. This special reserve shall revert to the retained earnings and be made available for distribution when the items that are accounted for as deductions from shareholders' equity are reversed in subsequent periods.

3) Earnings distribution

The Company' s Articles of Incorporation stipulate that at least 10% of annual net income, after deducting accumulated deficit, if any, must be retained as legal reserve until such retention equals the amount of paid in capital. In addition, a special reserve shall be set aside in accordance with applicable laws and regulations. The remaining balance, together with the unappropriated earnings from the previous years, after retaining a certain portion of it for business considerations, can be distributed as dividends to shareholders. Except for the distribution of capital surplus and legal reserve in accordance with applicable laws and regulations, the Company cannot distribute any earnings when there are no retained earnings.

Since the Company operates in an industry experiencing rapid change and development, earnings are distributed in consideration of the current year' s earnings, the overall economic environment, related laws and decrees, as well as the Company' s long term development and stability in its financial position. The Company has adopted a balance dividend policy, in which a cash dividend comprises at least 10% of the total dividend distribution.

The appropriation of 2018 and 2017 earnings were approved by the shareholders at the meetings on May 30, 2019 and May 30, 2018, respectively. The resolved appropriation of the dividend per share were as follows:

| | 2018 | | 2017 | |
|---|---|---|---|---|
| | **Dividends per share (in dollars)** | **Amount** | **Dividends per share (in dollars)** | **Amount** |
| Dividends per share: | | | | |
| Cash dividends | $ 2.50 | **252,245** | 2.60 | **262,334** |

(iv) Other equity items (net after tax)

1) Foreign currency translation differences

| | 2019 | 2018 |
|---|---|---|
| Balance at January 1 | $ (41,061) | (49,321) |
| Foreign exchange differences arising from translation of foreign operations | (8,098) | 8,260 |
| Balance at December 31 | **$ (49,159)** | **(41,061)** |

2) Unrealized gains (losses) on financial assets measured at fair value through other comprehensive income

| | 2019 | 2018 |
|---|---|---|
| Balance at January 1 (per IAS 39) | $ (26,479) | - |
| Adjustment on initial application of IFRS 9 | - | (37,614) |
| Balance at January 1 (per IFRS 9) | (26,479) | (37,614) |
| Share of other comprehensive income of subsidiaries | (169) | - |
| Unrealized gains (losses) from investments in equity instruments measured at fair value through other comprehensive income | (2,772) | 11,135 |
| Balance at December 31 | **$ (29,420)** | **(26,479)** |

(r) Earnings per share ("EPS")

(i) Basic earnings per share

| | 2019 | 2018 |
|---|---|---|
| Net income attributable to shareholders of the Company | **$ 376,642** | **358,839** |
| Weighted-average number of ordinary shares outstanding (in thousands) | **100,898** | **100,898** |
| Basic earnings per share (in dollars) | **$ 3.73** | **3.56** |

(ii) Diluted earnings per share

| | 2019 | 2018 |
|---|---|---|
| Net income attributable to shareholders of the Company | **$ 376,642** | **358,839** |
| Weighted-average number of ordinary shares outstanding (in thousands) | 100,898 | 100,898 |
| Effect of dilutive potential common stock (in thousand): | | |
| Remuneration to employees | 1,390 | 1,771 |
| Weighted-average number of ordinary shares outstanding (including effect of dilutive potential common stock) | **102,288** | **102,669** |
| Diluted earnings per share (in dollars) | **$ 3.68** | **3.50** |

(s) Revenue from contracts with customers

(i) Disaggregation of revenue

| | 2019 | 2018 |
|---|---|---|
| Major products: | | |
| Flash memory cards | $ 4,435,733 | 4,653,957 |
| Memory modules | 2,708,862 | 4,406,760 |
| Others | 6,803 | 3,478 |
| | **$ 7,151,398** | **9,064,195** |

(ii) Contract balances

| | December 31, 2019 | December 31, 2018 | January 1, 2018 |
|---|---|---|---|
| Notes and accounts receivable (including related parties) | $ 882,868 | 1,058,793 | 1,344,546 |
| Less: loss allowance | (5,293) | (4,270) | (2,756) |
| | **$ 877,575** | **1,054,523** | **1,341,790** |

For details on notes and accounts receivable and its loss allowance, please refer to note 6(d).

(t) Remuneration to employees, and directors and supervisors

The Company’s article of incorporation requires that earnings shall first to be offset against any deficit, then, a minimum of 4% will be distributed as remuneration to its employees and no more than 1.4% to its directors. Employees who are entitled to receive the abovementioned employee remuneration, in shares or cash, include the employees of the subsidiaries of the Company who meet certain specific requirement. The Company no longer has supervisors since the reelection of directors at the shareholders’ meeting on May 30, 2018. The required duties of supervisors are being fulfilled by the Audit Committee.

For the years ended December 31, 2019 and 2018, the Company estimated its remuneration to employees amounting to $49,120 and $44,047, respectively, and the remuneration to directors and supervisors amounting to $7,323 and $6,852, respectively. The abovementioned estimated amounts are calculated based on the net profits before tax of each period (excluding the remuneration to employees, and directors and supervisors), multiplied by a certain percentage of the remuneration to employees, and directors and supervisors. The estimations are recognized as operating expenses. If the actual amounts differ from the estimated amounts, the differences shall be accounted as changes in accounting estimates and recognized as profit or loss in following year.

The abovementioned estimated remuneration to employees, and directors and supervisors is the same as the amount approved by the Board of Directors and will be paid in cash. Related information is available on the Market Observation Post System website of the Taiwan Stock Exchange.

(u) Non-operating income and loss

(i) Other income

| | 2019 | 2018 |
|---|---|---|
| Interest income from bank deposits | $ 3,035 | 1,039 |
| Rental income | - | 3,156 |
| | **$ 3,035** | **4,195** |

(ii) Other gains and losses－net

| | 2019 | 2018 |
|---|---|---|
| Foreign currency exchange loss | (5,426) | (3,003) |
| Gain (loss) on financial assets and liabilities at fair value through profit or loss | 1,131 | (2,828) |
| Loss on disposal of property, plant and equipment | (355) | - |
| Impairment loss on non-financial assets | - | (127) |
| Others | 3,187 | 14,389 |
| | **$ (1,463)** | **8,431** |

(iii) Finance costs

| | 2019 | 2018 |
|---|---|---|
| Interest expense from bank loans | $ 4,255 | 7,650 |
| Interest expense from lease liabilities | 345 | - |
| | **$ 4,600** | **7,650** |

(v) Financial instruments

(i) Categories of financial instruments

1) Financial assets

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Financial assets at fair value through profit or loss | $ 139,604 | 454 |
| Financial assets at fair value through other comprehensive income | 41,748 | 44,520 |
| Financial assets measured at amortized cost | | |
| Cash and cash equivalents | 421,569 | 604,931 |
| Notes and accounts receivable (including related parties) | 877,575 | 1,054,523 |
| Other receivables | 169 | 201 |
| Other financial assets (including current and non-current) | 413,008 | 3,308 |
| Subtotal | 1,712,321 | 1,662,963 |
| Total | **$ 1,893,673** | **1,707,937** |

2) Financial liabilities

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Financial liabilities at fair value through profit or loss | $ 124 | 289 |
| Financial liabilities measured at amortized cost: | | |
| Short-term borrowings | 74,950 | 138,218 |
| Notes and accounts payable (including related parties) | 924,170 | 951,802 |
| Other payables (including related parties) | 91,525 | 142,161 |
| Lease liabilities (including current and non-current) | 13,431 | - |
| Subtotal | 1,104,076 | 1,232,181 |
| Total | **$ 1,104,200** | **1,232,470** |

(ii) Fair value information

1) Financial instruments not measured at fair value

The Company considers that the carrying amounts of financial assets and financial liabilities measured at amortized cost approximate their fair values.

2) Financial instruments measured at fair value

The fair value of financial assets and liabilities at fair value through profit and loss and financial assets at fair value through other comprehensive income are measured on a recurring basis.

The table below analyzes financial instruments that are measured at fair value subsequent to initial recognition, grouped into Levels 1 to 3 based on the degree to which the fair value is observable. The different levels have been defined as follows:

a) Level 1: quoted prices (unadjusted) in active markets for identified assets or liabilities.

b) Level 2: inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (i.e., as prices) or indirectly (i.e., derived from prices).

c) Level 3: inputs for the assets or liabilities that are not based on observable market data (unobservable inputs).

**APACER TECHNOLOGY INC.**
**Notes to Parent-Company-Only Financial Statements**

| | December 31, 2019 | | | | |
|---|---|---|---|---|---|
| | | Fair Value | | | |
| | Carrying amount | Level 1 | Level 2 | Level 3 | Total |
| Financial assets at fair value through profit or loss—current: | | | | | |
| Open-ended mutual funds | $ 139,527 | 139,527 | - | - | 139,527 |
| Derivatives—foreign currency forward contracts | 77 | - | 77 | - | 77 |
| | $ 139,604 | 139,527 | 77 | - | 139,604 |
| Financial assets at fair value through other comprehensive income—non-current: | | | | | |
| Domestic unlisted stocks | $ 41,748 | - | - | 41,748 | 41,748 |
| Financial liabilities at fair value through profit or loss—current: | | | | | |
| Derivatives-foreign currency—forward contracts | $ 124 | - | 124 | - | 124 |

| | December 31, 2018 | | | | |
|---|---|---|---|---|---|
| | | Fair Value | | | |
| | Carrying amount | Level 1 | Level 2 | Level 3 | Total |
| Financial assets at fair value through profit or loss—current: | | | | | |
| Derivatives—foreign currency forward contracts | $ 454 | - | 454 | - | 454 |
| Financial assets at fair value through other comprehensive income—non-current: | | | | | |
| Domestic unlisted stocks | $ 44,520 | - | - | 44,520 | 44,520 |
| Financial liabilities at fair value through profit or loss—current: | | | | | |
| Derivatives—foreign currency forward contracts | $ 289 | - | 289 | - | 289 |

(iii) Valuation techniques used in fair value measurement

1) Non-derivative financial instruments

The fair value of financial instruments traded in active liquid markets is determined with reference to quoted market prices.

The fair values of open-ended mutual funds with standard terms and conditions, and traded in active markets are determined with reference to quoted market prices.

Except for the abovementioned financial instruments traded in an active market, the fair value of other financial instruments are based on the valuation techniques or the quotation from counterparty. The fair value using valuation techniques refers to the current fair value of other financial instruments with similar conditions and characteristics, or using a discounted cash flow method, or other valuation techniques which include model calculating with observable market data at the reporting date.

The fair value of the unlisted stock held by the Company is estimated by using the market approach and is determined by reference to valuations of similar companies, third-party quotation, and recent financing and operating activities. The significant unobservable inputs is primarily the liquidity discounts. No quantitative information is disclosed due to that the possible changes in liquidity discounts would not cause significant potential financial impact.

2) Derivative financial instruments

The fair value of derivative financial instruments is determined using a valuation technique, with estimates and assumptions consistent with those used by market participants and that are readily available to the Company. The fair value of foreign currency forward contracts is computed individually by each contract using the valuation technique.

(iv) Transfers between levels of the fair value hierarchy

There were no transfers among fair value hierarchies for the years ended December 31, 2019 and 2018.

(v) Movement in financial assets included in Level 3 of fair value hierarchy:

| | | 2019 | 2018 |
|---|---|---|---|
| Balance, beginning of year | $ | 44,520 | 29,862 |
| Purchased | | - | 3,523 |
| Gains (losses) recognized in other comprehensive income, and presented in unrealized gains (losses) on financial assets measured at fair value through other comprehensive income | | (2,772) | 11,135 |
| Balance, end of year | **$** | **41,748** | **44,520** |

(w) Financial risk management

The Company is exposed to credit risk, liquidity risk, and market risk (including currency risk, interest rate risk, and other market price risk). The Company has disclosed the information on exposure to the aforementioned risks and the Company's policies and procedures to measure and manage those risks as well as the quantitative information below.

The Company's management monitors and reviews financial activities in accordance with procedures required by relevant regulations and internal controls. Internal auditors undertake both regular and ad hoc reviews of risk management controls and procedures, the results of which are reported to the Company's Board of Directors.

The Company's Board of Directors is responsible for developing and monitoring the Company's risk management policies. The Company's risk management policies are established to identify and analyze the risks faced by the Company, to set appropriate risk limits and controls, and to monitor adherence to the controls. Risk management policies and systems are reviewed regularly to reflect changes in market conditions and the Company's operations.

(i) Credit risk

Credit risk is the risk of financial loss to the Company if a customer or counterparty of a financial instrument fails to meet its contractual obligations, and arises principally from the Company's cash and cash equivalents, derivative instruments, and receivables from customers. As of December 31, 2019 and 2018, the Company's maximum exposure to credit risk amounted to $1,893,673 and $1,707,937, respectively.

The Company maintains cash and enters into derivative transactions with various reputable financial institutions; therefore, the exposure related to potential default by those counter-parties is not considered significant.

In order to reduce credit risk of accounts receivable, the Company has established a credit policy under which each customer is analyzed individually for creditworthiness for the purpose of setting the credit limit. Additionally, the Company continuously evaluates the credit quality of its customers and utilizes its insurance to minimize the credit risk. As of December 31, 2019 and 2018, the Company has insured credit insurance that cover accounts receivable amounting to $395,017 and $382,610, respectively. When the debtors are in default, the Company will receive 90% of the credit insurance.

The Company believes that there is no significant concentration of credit risk due to the Company's large number of customers and their wide geographical spread.

(ii) Liquidity risk

Liquidity risk is the risk that the Company will encounter difficulty in settling its financial liabilities by delivering cash or other financial assets. The Company manages liquidity risk by monitoring regularly the current and mid- to long-term cash demand, maintaining adequate cash and banking facilities, and ensuring compliance with the terms of the loan agreements. As of December 31, 2019 and 2018, the Company had unused credit facilities of $2,299,450 and $2,491,803, respectively.

The table below summarizes the maturity profile of the Company's financial liabilities based on contractual undiscounted payments.

| | | Carrying amount | Contractual cash flows | Within 1 year | More than 1 year |
|---|---|---|---|---|---|
| **December 31, 2019** | | | | | |
| Non-derivative financial liabilities: | | | | | |
| Short-term borrowings | $ | 74,950 | (75,103) | (75,103) | - |
| Notes and accounts payable (including related parties) | | 924,170 | (924,170) | (924,170) | - |
| Other payables (including related parties) | | 91,525 | (91,525) | (91,525) | - |
| Lease liabilities | | 13,431 | (13,739) | (3,035) | (10,704) |
| Derivative financial instruments: | | | | | |
| Foreign currency forward contracts： | | | | | |
| Inflow | | - | 24,613 | 24,613 | - |
| Outflow | | 124 | (24,737) | (24,737) | - |
| **December 31, 2018** | | | | | |
| Non-derivative financial liabilities: | | | | | |
| Short-term borrowings | $ | 138,218 | (138,560) | (138,560) | - |
| Notes and accounts payable (including related parties) | | 951,802 | (951,802) | (951,802) | - |
| Other payables (including related parties) | | 142,161 | (142,161) | (142,161) | - |
| Derivative financial instruments: | | | | | |
| Foreign currency forward contracts： | | | | | |
| Inflow | | - | 58,920 | 58,920 | - |
| Outflow | | 289 | (59,209) | (59,209) | - |

The Company does not expect that the cash flows included in the maturity analysis would occur significantly earlier or at significantly different amounts.

(iii) Market risk

Market risk is the risk that changes in market prices, such as foreign exchange rates, interest rates, and equity prices, will affect the Company's income or the value of its financial instruments. The objective of market risk management is to manage and control market risk exposures within acceptable parameters, while optimizing the return.

The Company utilizes derivative financial instruments to manage market risk. All such transactions are carried out within the guidelines set by the Company's Board of Directors.

1) Foreign currency risk

The Company utilizes foreign currency forward contracts to hedge its foreign currency exposure with respect to its sales and purchases. The maturity dates of derivative financial instruments the Company entered into were less than six months and did not conform to the criteria for hedge accounting. These financial instruments help to reduce, but do not eliminate, the impact of foreign currency exchange rate movements.

The Company's exposure to foreign currency risk arises from cash and cash equivalents, notes and accounts receivable (including related parties), notes and accounts payable (including related parties), other receivables (including related parties), other payables (including related parties), and loans and borrowings that are denominated in a currency other than the functional currency of the Company. At the reporting date, the carrying amounts of the Company's significant monetary assets and liabilities denominated in a currency other than the functional currency of the Company and their respective sensitivity analysis were as follows:

(Amounts in Thousands of New Taiwan Dollars)

| | December 31, 2019 | | | | |
|---|---|---|---|---|---|
| | **Foreign currency (in thousands)** | **Exchange rate** | **TWD (in thousands)** | **Change in magnitude** | **Pre-tax effect on profit or loss (in thousands)** |
| Financial assets | | | | | |
| Monetary items | | | | | |
| USD | $ 28,035 | 29.980 | 840,489 | 1 % | 8,405 |
| CNY | 17,921 | 4.303 | 77,114 | 1 % | 771 |
| Financial liabilities | | | | | |
| Monetary items | | | | | |
| USD | 28,815 | 29.980 | 863,874 | 1 % | 8,639 |
| CNY | 62 | 4.303 | 267 | 1 % | 3 |

| | December 31, 2018 | | | | |
|---|---|---|---|---|---|
| | **Foreign currency (in thousands)** | **Exchange rate** | **TWD (in thousands)** | **Change in magnitude** | **Pre-tax effect on profit or loss (in thousands)** |
| Financial assets | | | | | |
| Monetary items | | | | | |
| USD | $ 35,300 | 30.715 | 1,084,240 | 1 % | 10,842 |
| Financial liabilities | | | | | |
| Monetary items | | | | | |
| USD | 31,059 | 30.715 | 953,977 | 1 % | 9,540 |

As the Company deal in diverse foreign currencies, gains and losses on foreign exchange were summarized as a single amount. The aggregate of realized and unrealized foreign exchange loss for the years ended December 31, 2019 and 2018 were $5,426 and $3,003, respectively.

2) Interest rate risk

The Company's bank loans carried floating interest rates. To manage the interest rate risk, the Company periodically assesses the interest rates of bank loans and maintains good relationships with financial institutions to obtain lower financing costs. The Company also strengthens the management of working capital to reduce the dependence on bank loans, as well as the risk arising from fluctuation of interest rates.

If interest rates had been 100 basis points (1%) higher/lower, with all other variables held constant, pre-tax income for the years ended December 31, 2019 and 2018 would have been $ 750 and $1,382, respectively, lower/higher, which mainly resulted from the borrowings with floating interest rates.

3) Other market price risk

The Company has long-term investments in unlisted stocks, which the Company does not actively participate in trading. The Company anticipates that there is no significant market risk related to the investments.

The investment target of open-ended mutual funds held by the Company are mostly monetary funds or bond funds. (accounted for as financial assets at fair value through profit or loss—current). The Company anticipates that there is no significant market risk related to the funds.

(x) Capital management

In consideration of the industry dynamics and future developments, as well as external environment factors, the Company maintains an optimal capital structure to enhance long-term shareholder value by managing its capital in a manner to ensure that it has sufficient and necessary financial resources to fund its working capital needs, research and development expenses, dividend payments, and other business requirements for continuing operations and to reward shareholders and take into consideration the interests of other shareholders. The Company monitors its capital through reviewing the liability-to-equity ratio periodically.

The Company's liability-to-equity ratio at the end of each reporting period was as follows:

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Total liabilities | $ 1,409,901 | 1,533,180 |
| Total equity | $ 2,806,246 | 2,695,283 |
| Liability-to-equity ratio | 50.24 % | 56.88 % |

In 2019, the Company decreased its bank loans and accounts payable due to the decrease of stock level. It also resulted in the decreasing of liability-to-equity ratio.

(y) Investing and financing activities not affecting current cash flow

(i) For acquisition of right-of-use assets under operating lease for the year ended December 31, 2019, please refer to note 6(i).

(ii) Reconciliation of liabilities arising from financing activities were as follows:

| | | | Non-cash changes | |
|---|---|---|---|---|
| | **January 1, 2019** | **Cash flows** | **Acquisition** | **December 31, 2019** |
| Short-term borrowings | $ 138,218 | (63,268) | - | 74,950 |
| Lease liabilities | 12,376 | (13,945) | 15,000 | 13,431 |
| | **$ 150,594** | **(77,213)** | **15,000** | **88,381** |

| | | | Non-cash changes | |
|---|---|---|---|---|
| | **January 1, 2018** | **Cash flows** | **Acquisition** | **December 31, 2018** |
| Short-term borrowings | $ 492,240 | (354,022) | - | 138,218 |
| Guarantee deposits | 1,339 | (1,339) | - | - |
| | **$ 493,579** | **(355,361)** | **-** | **138,218** |

## 7. Related-party transactions:

(a) Name and relationship with related parties

The following are the entities that have had transactions with the Company during the periods covered in the parent-company-only financial statements and the Company's subsidiaries.

| Name of related parties | Relationship with the Company |
|---|---|
| Apacer Memory America Inc. (AMA) | The Company's subsidiary |
| Apacer Technology B.V. (AMH) | The Company's subsidiary |
| Kingdom Corp. Limited (AMK) | The Company's subsidiary |
| Apacer Technology Japan Corp. (AMJ) | The Company's subsidiary |
| Apacer Technologies Private Limited (ATPL) | The Company's subsidiary |
| Apacer Technology (BVI) Inc. (ACYB) | The Company's subsidiary |
| Apacer Electronic (Shanghai) Co., Ltd (AMC) | ACYB's subsidiary |
| Shenzhen Kylinesports Technology Co. (AMS) | AMK's subsidiary |
| Ecolumina Technologies Inc. (Ecolumina) | The Company's other related party |
| Phison Electronics Corporation (Phison) | The Company's director (Phison became the Company's director since the Company's reelection of directors on May 30, 2018) |
| Directors, general manager and vice general managers | The Company's key management personnel |

(b) Significant related-party transactions

(i) Revenue

| | | 2019 | 2018 |
|---|---|---|---|
| Subsidiaries: | | | |
| AMA | $ | 710,753 | 1,813,223 |
| Others | | 1,138,814 | 1,294,749 |
| The Company's key management personnel (the Company's director) | | 7,434 | 7,725 |
| Other related parties | | 281 | 227 |
| | $ | **1,857,282** | **3,115,924** |

The sales prices and payment terms of sales to related parties depend on the economic environment and market competition, and are not different from those with third-party customers. The payment terms of 30～90 days calculated from the delivery date shows no significant difference between related parties and third-party customers. The Company does not receive any collateral for the receivables from related parties. The Company has not recognized a specific allowance for doubtful receivables after assessment.

(ii) Purchases

| | | 2019 | 2018 |
|---|---|---|---|
| Subsidiaries | $ | - | 23 |
| Other related parties | | 82 | - |
| The Company's key management personnel—Phison (the Company's director) | | 1,085,531 | 614,510 |
| | $ | **1,085,613** | **614,533** |

There are no significant differences between the purchase prices for related parties and those for third-party vendors. The payment terms of EOM 45 days shows no significant difference between related parties and third-party vendors.

(iii) Receivables

| Account | Related-party categories | | December 31, 2019 | December 31, 2018 |
|---|---|---|---|---|
| Accounts receivable | Subsidiaries: | | | |
| | AMA | $ | 53,974 | 82,795 |
| | Others | | 116,197 | 88,051 |
| | Other related parties | | - | 110 |
| | The Company's key management personnel (the Company's director) | | 532 | 929 |
| Other receivables | Subsidiaries | | - | 189 |
| | | $ | **170,703** | **172,074** |

(iv) Payables

| Account | Related-party categories | December 31, 2019 | December 31, 2018 |
|---|---|---|---|
| Accounts payable | Subsidiaries | $ 534 | - |
| | Other related parties | 32 | - |
| | The Company's key management personnel—Phison (the Company's director) | 182,583 | 132,755 |
| Other payables | Subsidiaries | 1,247 | 2,526 |
| | Other related parties | 23 | - |
| | The Company's key management personnel (the Company's director) | 17 | 17 |
| | | $ 184,436 | 135,298 |

(v) Operating expenses

The operating expenses related to consulting service for market development, business promotion and after-sale service provided by related parties were as follows:

| Account | Related party categories | 2019 | 2018 |
|---|---|---|---|
| Operating expenses | Subsidiaries | $ - | 9,350 |
| | Other related parties | 129 | - |
| | The Company's key management personnel (the Company's director) | 422 | 291 |
| | | $ 551 | 9,641 |

(c) Compensation for key management personnel

| | 2019 | 2018 |
|---|---|---|
| Short-term employee benefits | $ 40,702 | 33,323 |
| Post-employment benefits | 216 | 216 |
| | $ 40,918 | 33,539 |

**8. Pledged assets: None**

## 9. Significant commitments and contingencies:

In addition to those in note 6(n), the Company had the following unrecognized commitments:

(a) Significant unrecognized commitments

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Unused letters of credit | $ 10,000 | 10,000 |

(b) As of December 31, 2019 and 2018, the Company had outstanding letters of guarantee amounting to $15,000 and $20,000, respectively, for the purpose of the payment of customs duties.

## 10. Significant loss from casualty: None

## 11. Significant subsequent events: None

## 12. Others:

Employee benefits, depreciation and amortization expenses categorized by function were as follows:

| | 2019 | | | 2018 | | |
|---|---|---|---|---|---|---|
| | Cost of revenue | Operating expenses | Total | Cost of revenue | Operating expenses | Total |
| Employee benefits: | | | | | | |
| Salaries | 138,958 | 361,393 | 500,351 | 128,748 | 335,187 | 463,935 |
| Insurance | 13,305 | 23,791 | 37,096 | 12,346 | 23,106 | 35,452 |
| Pension | 5,525 | 13,047 | 18,572 | 5,138 | 12,451 | 17,589 |
| Remuneration to directors | - | 10,323 | 10,323 | - | 9,171 | 9,171 |
| Others | 8,799 | 15,077 | 23,876 | 8,526 | 13,700 | 22,226 |
| Depreciation | 18,561 | 31,500 | 50,061 | 16,603 | 18,410 | 35,013 |
| Amortization | 2,175 | 9,822 | 11,997 | 2,211 | 7,309 | 9,520 |

| | 2019 | 2018 |
|---|---|---|
| The number of employees | 511 | 493 |
| The number of non-employee directors | 7 | 6 |
| Average employee benefits | $ 1,151 | 1,107 |
| Average employee salaries | $ 993 | 953 |
| Average employee salaries adjustment rate | 4.20 % | |

**APACER TECHNOLOGY INC.**
**Notes to Parent-Company-Only Financial Statements**

## 13. Additional disclosures

(a) Information on significant transactions:

In accordance with the requirements of the Regulations Governing the Preparation of Financial Reports by Securities Issuers, the Company discloses the following information on significant transactions for the year ended December 31, 2019:

(i) Financing provided to other parties: None

(ii) Guarantee and endorsement provided to other parties: None

(iii) Marketable securities held at the reporting date (excluding investments in subsidiaries and associates):

(In Thousands of Shares)

| Investing Company | Marketable Securities Type and Name | Relationship with the Securities Issuer | Financial Statement Account | December 31, 2019 | | | | Note |
|---|---|---|---|---|---|---|---|---|
| | | | | Shares/ Units | Carrying Value | Percentage of Ownership | Fair value | |
| The Company | Fund: FSITC Taiwan Money Market | - | Financial assets at fair value through profit or loss －current | 3,205 | 49,232 | - | 49,232 | - |
| The Company | Fund: Yuanta De-Li Money Market Fund | - | Financial assets at fair value through profit or loss －current | 5,156 | 90,295 | - | 90,295 | - |
| The Company | Stock: Formosa Golf and Country Club Corp. | - | Financial assets at fair value through other comprehensive income－non-current | 3.6 | 9,643 | 0.01 % | 9,643 | Including stocks and memberships |
| The Company | Stock: OTO Photonics Inc. | - | Financial assets at fair value through other comprehensive income－non-current | 3,266 | 32,105 | 12.78 % | 32,105 | - |
| AMS | Stock: Futurepath Technology(Shenzhen)co., ltd | - | Financial assets at fair value through other comprehensive income－non-current | 31.5 | 246 | 1.75 % | 246 | - |

(iv) Marketable securities for which the accumulated purchase or sale amounts for the year exceed $300 million or 20% of the paid-in capital: None

(v) Acquisition of real estate which exceeds $300 million or 20% of the paid-in capital: None

(vi) Disposal of real estate which exceeds $300 million or 20% of the paid-in capital: None

(vii) Total purchases from and sales to related parties which exceed $100 million or 20% of the paid-in capital:

| Company Name | Related Party | Nature of Relationship | Transaction Details | | | | Transactions with Terms Different from Others | | Notes/Accounts Receivable or (Payable) | | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Purchases/ (Sales) | Amount | % of Total Purchases/ (Sales) | Payment Terms | Unit Price | Payment Terms | Ending Balance | % of Total Notes/Accounts Receivable or (Payable) | |
| The Company | AMA | The Company's subsidiary | (Sales) | (710,753) | (10)% | OA30 | - | - | 53,974 | 6 % | |
| The Company | AMK | The Company's subsidiary | (Sales) | (177,940) | (2)% | OA30 | - | - | 8,496 | 1 % | |
| The Company | AMH | The Company's subsidiary | (Sales) | (471,007) | (7)% | OA30 | - | - | 19,887 | 2 % | |
| The Company | AMC | The Company's subsidiary | (Sales) | (374,910) | (5)% | M60 | - | - | 77,111 | 9 % | |
| The Company | AMJ | The Company's subsidiary | (Sales) | (114,957) | (2)% | M60 | - | - | 10,703 | 1 % | |
| The Company | Phison | The Company's director | Purchases | 1,085,531 | 18 % | M45 | - | - | (182,583) | (20)% | |
| AMA | The Company | AMA's parent company | Purchases | 710,753 | 97 % | OA30 | - | - | (53,974) | (97)% | |
| AMK | The Company | AMK's parent company | Purchases | 177,940 | 100 % | OA30 | - | - | (8,496) | (100)% | |
| AMH | The Company | AMH's parent company | Purchases | 471,007 | 100 % | OA30 | - | - | (19,887) | (100)% | |
| AMC | The Company | AMC's parent company | Purchases | 374,910 | 100 % | M60 | - | - | (77,111) | (100)% | |
| AMJ | The Company | AMJ's parent company | Purchases | 114,957 | 100 % | M60 | - | - | (10,703) | (100)% | |

(viii) Receivables from related parties which exceed $100 million or 20% of the paid-in capital: None.

(ix) Transactions about derivative instruments: Please refer to note 6(b)

(b) Information on investees:

(In Thousands of Shares)

| Investor | Investee | Location | Main Businesses and Products | Original Investment Amount December 31, 2019 | Original Investment Amount December 31, 2018 | Balance as of December 31, 2019 Shares | Balance as of December 31, 2019 Percentage of Ownership | Balance as of December 31, 2019 Carrying Value | Net Income (Loss) of the Investee | Investment Income (Loss) | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| The Company | AMA | USA | Trading of memory modules | 610 | 610 | 20 | 100.00 % | 241,863 | 25,075 | 25,075 | |
| The Company | ACYB | British Virgin Islands | Investment and holding activity | 18,542 | 18,542 | 2,636 | 100.00 % | 10,086 | (4,756) | (4,756) | |
| The Company | AMJ | Japan | Trading of memory modules | 2,918 | 2,918 | 0.2 | 100.00 % | 15,668 | (217) | (217) | |
| The Company | ATPL | India | Trading of memory modules | 915 | 915 | 29 | 100.00 % | 1,432 | 36 | 36 | |
| The Company | AMK | Hong Kong | Trading of memory modules | 20,917 | 20,917 | 5,000 | 100.00 % | 11,945 | 529 | 529 | |
| The Company | AMH | Netherlands | Trading of memory modules | 130,469 | 130,469 | 80 | 100.00 % | 34,098 | 8,978 | 8,978 | |
| The Company | JoiiUp | Taiwan | Cloud services and software development | 15,000 | 15,000 | 1,500 | 16.15 % | - | (11,268) | (884) | |

(c) Information on investments in Mainland China:

(i) Name and main businesses and products of investee companies in Mainland China:

| Investee Company Name | Main Businesses and Products | Total Amount of Paid-in Capital | Method of Investment (Note 1) | Accumulated Outflow of Investment from Taiwan as of January 1, 2019 | Investment Flows Outflow | Investment Flows Inflow | Accumulated Outflow of Investment from Taiwan as of December 31, 2019 | Net Income (Loss) of Investee | % of Ownership of Direct or Indirect Investment | Investment Income (Loss) (Note 2) | Carrying Value as of December 31, 2019 | Accumulated Inward Remittance of Earnings as of December 31, 2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apacer Electronic (Shanghai) Co., Ltd (AMC) | Trading of memory modules | 14,990 (USD500 thousand) | Type 2 | 14,990 (USD500 thousand) | - | - | 14,990 (USD500 thousand) | (4,926) | 100.00 % | (4,926) | 6,884 | - |
| Shenzhen Kylinesports Technology Co. (AMS) | Trading of gaming products | 22,425 (USD748 thousand) | Type 2 | 17,928 (USD598 thousand) | - | - | 17,928 (USD598 thousand) (Note 4) | (1,336) | 99.00 % | (1,322) | 15,036 | - |

Note 1: Method of investments:
Type 1: Direct investment in Mainland China.
Type 2: Indirect investment in Mainland China through a holding company established in a third country.
Type 3: Others.
Note 2: Investment income or loss recognized based on the unaudited financial statements of investee companies.
Note 3: The above amounts were translated into New Taiwan dollars at the exchange rate of US$1=NT$29.98
Note 4: The amount of AMK reinvestments amounting to US$134 thousand was excluded.

(ii) Limits on investments in Mainland China:

| Investor | Accumulated Investment in Mainland China as of December 31, 2019 | Investment Amounts Authorized by Investment Commission, MOEA | Upper Limit on Investment Authorized by Investment Commission, MOEA |
|---|---|---|---|
| The Company | 32,918 (USD 1,098 thousand) | 36,935 (USD 1,232 thousand) | 1,683,748 |

(iii) Significant transactions with investee companies in Mainland China:

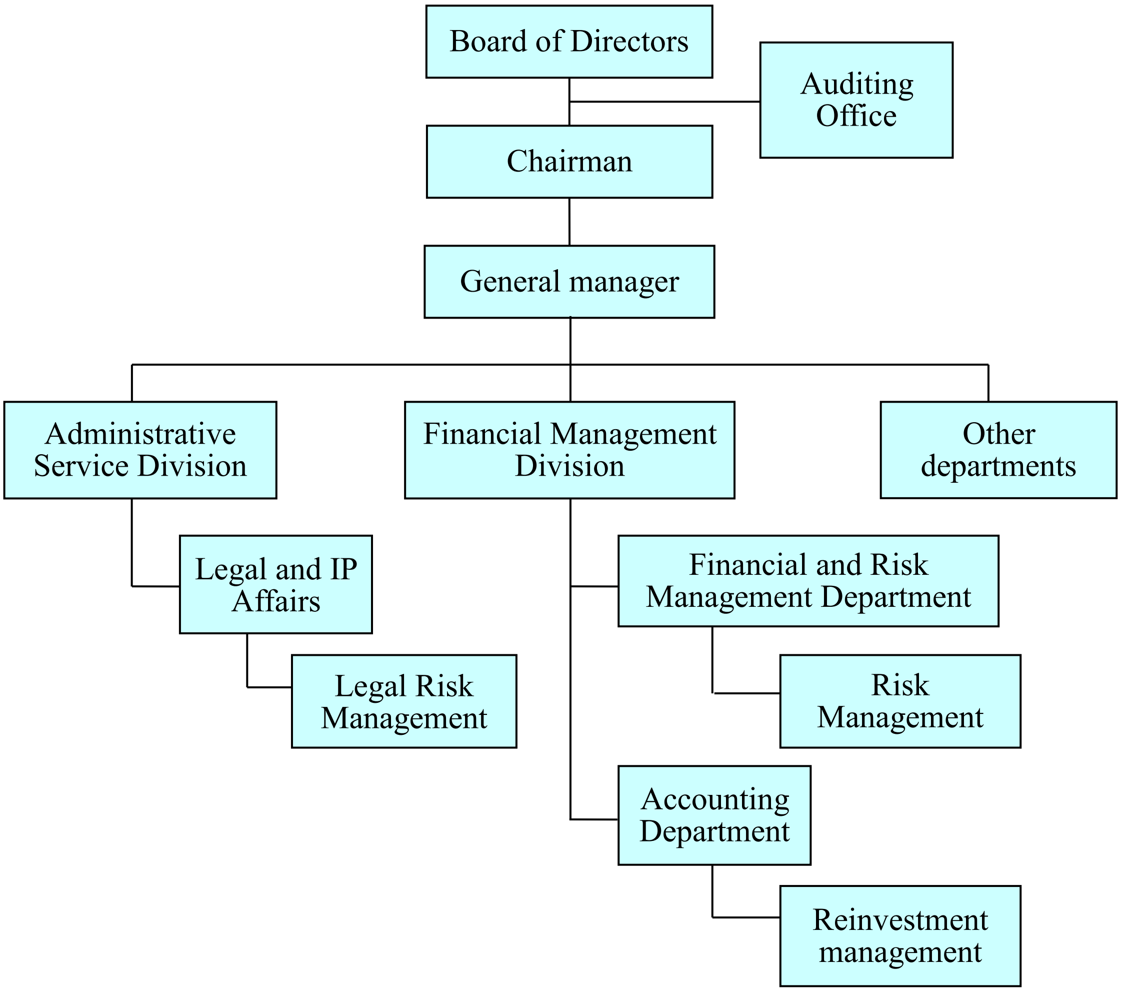
Please refer to section "Information on significant transactions" for detail description.

## 14. Segment information:

Please refer to the consolidated financial statements for the years ended December 31, 2019 and 2018 for disclosure of segment information.

# VII. Review and analysis of the financial status and financial performance and risk issues

Risk management organization structure:




- The Board of Directors reviews and supervises the implementation of risk management and control.
- The General Manager and other senior executives are in charge of supervising the implementation of risk management decisions, and regularly controlling and evaluating the effectiveness of the risk management implementation.
- The Auditing Office regularly review and supervise the actual implementation of internal control processes and annual audit programs.
- The Legal and IP Affairs Office is in charge of legal risk management, contract reviews, and litigation to reduce legal risks.
- The Finance and Risk Management Department is in charge of financial hedge planning and hedging transactions.
- The Accounting Department is responsible for the confirmation of the hedging transactions and the checking related accounts to ensure the accuracy of the transactions and the reliability of the financial statements.

1. Financial status

Unit: TWD 1,000

| Item \ Year | 2019 | 2018 | Difference | |
|---|---|---|---|---|
| | | | Amount | % |
| Current assets | 3,158,606 | 3,175,676 | (17,070) | (0.54) |
| Long-term investments | 41,994 | 45,821 | (3,827) | (8.35) |
| Real estate, plant and equipment | 876,060 | 887,458 | (11,398) | (1.28) |
| Right-of-use assets. | 35,110 | - | 35,110 | - |
| Intangible assets | 62,278 | 66,280 | (4,002) | (6.04) |
| Other assets | 103,146 | 100,284 | 2,862 | (2.85) |
| Total assets | 4,277,194 | 4,275,519 | 1,675 | (0.04) |
| Current liabilities | 1,421,922 | 1,538,233 | (116,311) | (7.56) |
| Non-current liabilities | 48,876 | 41,830 | 7,046 | 16.84 |
| Total liabilities | 1,470,798 | 1,580,063 | (109,265) | (6.92) |
| Share capital | 1,008,978 | 1,008,978 | - | - |
| Capital reserve | 359,910 | 359,910 | - | - |
| Reserve surplus | 1,515,937 | 1,393,935 | 122,002 | 8.75 |
| Other equities | (78,579) | (67,540) | (11,039) | 16.34 |
| Treasury shares | - | - | - | - |
| Attributed to stockholders of the company | 2,806,246 | 2,695,283 | 110,963 | 4.12 |
| Non-controlling interests | 150 | 173 | (23) | (13.29) |
| Total equity | 2,806,396 | 2,695,456 | 110,940 | 4.12 |
| Changes of more than 20%, or more than TWD10 million are described below: None. | | | | |

2. Financial performance

(1) Analysis of financial performance over the past two years

Unit: TWD 1,000

| Item \ Year | 2019 | 2018 | Difference | |
|---|---|---|---|---|
| | | | Amount | % |
| Operating revenue | 7,485,821 | 9,441,618 | (1,955,797) | (20.71) |
| Gross operating profit | 1,400,243 | 1,309,289 | 90,954 | 6.95 |
| Operating income | 483,595 | 437,883 | 45,712 | 10.44 |
| Non-operating income and expenses | (4,695) | 623 | (5,318) | (853.61) |
| Net profit before tax | 478,900 | 438,506 | 40,394 | 9.21 |
| Net profit for the current period | 376,629 | 358,830 | 17,799 | 4.96 |
| Other comprehensive income for the period (net income after taxes) | (12,883) | 16,826 | (29,709) | (176.57) |
| Total consolidated income for the current period | 363,746 | 375,656 | (11,910) | 3.17 |
| Changes of more than 20%, or more than TWD10 million are described below:<br>1. Decrease in "operating income": This was mainly caused by a market price drop in 2019.<br>2. Decrease in "other comprehensive income for the period (net income after taxes)": This was due to an increase in the loss of exchange differences on translation of foreign operations, caused by fluctuations of foreign exchange rates. | | | | |

(2) The main factors influencing the expected sales volume in the coming year and the main factors for our company's expected continued growth or decline of our sales volume:

Our company is rooted in core technologies for storage and focuses on vertical industry applications, grasps consumer market trends, and develops an integrated ecosystem for services around information storage, reception, analysis, control, and sharing. We lead in the continuous development of solutions for the cloud and the Internet of Things. On the basis of our solid production and marketing mechanisms and a comprehensive distribution system that serves regional markets with a full range of and diversified products and services, our company expects to achieve its sales target for 2020.

3. Cash flow

(1) Analysis of changes in cash flow over the past two years (consolidated):

Unit: TWD 1,000

| Item \ Year | 2019 | 2018 | Difference | |
|---|---|---|---|---|
| | | | Amount | % |
| Operating activity | 900,567 | 829,711 | 70,856 | 8.54 |
| Investment activity | (583,445) | (57,003) | (526,442) | (63.45) |
| Financing activity | (353,527) | (632,098) | 278,571 | 33.57 |
| Changes of more than 20%, or more than TWD10 million are described below:<br>1. The increase in net cash outflow from investing activities was due to an increase in time deposits with a term of three months or longer in 2019.<br>2. The decrease in net cash outflow from financing activities was due to a decrease in short-term borrowings in 2019. | | | | |

(2) Improvement plan for lack of liquidity: None.

(3) Cash flow analysis for the coming year:

Unit: TWD 1,000

| Cash balance at beginning of period | All year from business Net cash flow from activities | All year Cash inflow | Cash surplus (insufficient) amount | Remedy for cash shortage | |
|---|---|---|---|---|---|
| | | | | Investment plan | Financial plan |
| 696,497 | 324,863 | (316,586) | 704,774 | - | - |

4. Impacts on financial operations from major capital expenditures in the coming year: None.

5. The reinvestment policy of the past year, reasons for profits or losses, the improvement plan and investment plan for the coming year:

(1) The reinvestment policy of the past year: Our company's reinvestment policy mainly aimed to increase revenue and profit.

(2) Reasons for the major losses on the reinvestments: Our subsidiaries have already demonstrated their profitability, but due to rapid changes in the market and fierce competition, the current business growth rate of these reinvestments has slowed down. In the future, we will exert tighter control on certain processes to ensure higher profits.

(3) Investment plan for the coming year: Our company will leverage its accumulated advantages of deep R&D in core technologies to develop potential applications in information reception, analysis, control, and sharing, and integrate these high-tech information services into an ecosystem to seize early opportunities in cloud business and the Internet of Things.

6. Risk matters requiring analysis and evaluation

(1) The effects of changes in interest rates and exchange rates and inflation on the profit and loss of the Company as well as future countermeasures

A. Changes in interest rates

Our company's liquidity is sufficient, and short-term bank borrowings are used for operational turnover. Interest rate fluctuations have a limited impact on our company. Short-term investments are mainly in time deposits, which are combined with funds to increase revenue.

If the annual interest rate on bank borrowings increases or decreases by 1%, ceteris paribus, the Company’s consolidated income before tax of 2019 would decrease or increase by TWD 1,417,000.

B. Changes in exchange rates

The foreign exchange positions of our company are mainly in US Dollar. Exchange rate risks stem from commercial transactions, and recognized assets and liabilities. We will maintain our consistent and stable strategy and actively avoid foreign exchange risks to reduce the impact of exchange rate fluctuations on our company's income.

Unit: TWD 1,000

| Item \ Year | 2019 |
|---|---|
| Consolidated net operating income (A) | 7,485,821 |
| Consolidated net operating profit (B) | 483,595 |
| Consolidated net gains (losses) from foreign exchange (C) | (9,110) |
| (C)/(A) | (0.12%) |
| (C)/(B) | (1.9%) |

C. Inflation

The operating status of our company last year and this year to the date has not been significantly affected by inflation.

(2) Policies on high-risk, high-leverage investments, capital lending, third-party or endorsed guarantees, and derivative commodity transactions, and the main reasons for profits or losses from these and future response measures

A. Our company engagement in high-risk, high-leverage investments: None.

B. Our company has not lent out, endorsed, or guaranteed any third-party funding.

C. Derivative financial commodity transactions: Our transactions in derivative products are mainly hedging transactions, which are handled in accordance with the provisions regarding trading procedures for derivative financial products in the "Criteria for Handling Acquisition and Disposal of Assets".

(3) Future R&D projects and expected R&D expenses

A. Our research and development plan for 2020 includes the following:

(A) Technology for high speed transmission

This year we will continue to invest in the development of industrial SSD for PCI-Express Gen4 high-speed transmission interfaces. We expect PCIe to become the next-generation of high-speed memory interfaces and the mainstream standard for transmission interfaces. The development of this SSD hardware, software and firmware architecture will be crucial in this development, which is why we will continue to invest in R&D for this technology. We plan to invest TWD 20 million in R&D for this area in 2020.

(B) Flash memory products for industrial applications

Based on our technologies for related solid-state hard-disk storage products, we research and develop embedded SATA, PCIe and USB products and related value-added application software and hardware. The main use of these industrial storage modules is to replace traditional hard disk storage products to ensure high reliability of data transmission and provide value-added applications. We continuously develop solid-state hard disk application technologies and products geared to customer and market needs. We plan to invest TWD 10 million in R&D for this area in 2020.

(C) Random dynamic memory storage devices

In response to the era of big data analysis and the server storage market, the demand for high-speed data access will increase, which is why we invest research and development of random dynamic memory devices. We plan to invest TWD 5 million in R&D for this area in 2020.

(D) Industrial and intelligent IoT architecture technology

In response to the development of Industry 4.0 era and the Internet of Things, wired and wireless transmission technologies and applications will continue to expand. Thus we will continue to research and develop transmission interface technologies for application in industrial IoT modules, serial terminals, central servers and complete platform system architecture. We will also invest in the research and development of connection technologies related to software platforms. We plan to invest TWD 6 million in R&D for this area in 2020.

B. Estimated investments in R&D

Our R&D expenses in 2019 were TWD 117,884,000. We plan to invest TWD 137,985,000 in R&D in 2020. Competition in the market for consumer and embedded storage and application products is fierce. To keep our products competitive and stay ahead in the industry, we have become a manufacturer that continuously launches innovative products. We intend to annually increase our R&D expenditures as a proportion of total revenue as one of our key expenditures.

Looking into the future, our company, while continuing to invest in research and development of consumer products, will develop a stronger focus on the rapidly increasing demand from the industrial control market. We have served the memory and storage market of industrial control for many years and have a deep understanding of customer needs there. Thus we will aggressively develop our R&D capabilities in embedded solid-state hard disk storage modules and industrial IoT architecture technologies, gradually increase collaborations in these core technologies, hire more R&D engineers specialized in firmware, software, and hardware, annually increase our in R&D investments including R&D personnel, tools, and testing hardware and software. This will enable us to develop and provide the industrial control market with diverse applications and customized services that are competitive, differentiated, and optimized.

C. The main factors affecting the success of R&D in the future

(A) Mastery and R&D of core technologies for high-speed transmission.

(B) R&D personnel experienced in software, hardware, system and system architecture.

(C) Electromechanical integration capabilities for firmware, hardware, mechanisms, and systems.

(D) Capabilities in storage testing and verification technologies.

(4) Changes in important policies and laws in Taiwan and abroad impacting our finances, and measures taken in response

Our company has not been affected by changes in important policies and laws in Taiwan or abroad last year that have affected our finances or business. Our main sales markets are in Asia, Europe, and the Americas. The European region consists mostly of developed countries, whose laws and major policies are more stable than other regions, while the Americas are dominated by the United States, which in the short term should have no military or political risks. Therefore we do not expect that our company will be adversely impacted by changes in important policies and laws in Taiwan or abroad in the future.

(5) Impacts from changes in technology and the industry, and measures taken in response

Our company closely follows changes and developments in technologies in our industry. Thus over the past year there was no significant impact on our company's finances or business arising from changes in technology or the industry.

(6) Impacts from changes in corporate or corporate crisis management, and measures taken in response

For many years our company has taken great care of maintaining a good corporate image and complying with statutory requirements. In the event of any situation that may affect our corporate image or legal compliance, a task force will be set up to formulate response measures. To date, there have been no incidents that could affect the corporate image.

(7) Expected benefits and potential risks from a merger or acquisition: None.

(8) Expected benefits and potential risks from expanding our plant:

Our company has completed the integration of the management of our factory in Tucheng and the headquarters of our company. We have established company milestones and objectives for our company's sustainable business. As of the printing date of this annual report, our company has no plans to expand the factory.

(9) Risks of concentrated procurement of or sales of goods, and measures taken in response: None.

(10) Impacts and risks from large transfers of shares held by our company’s directors, supervisors, and large shareholders holding more than 10% of shares, and response measures: None.

(11) Impacts and risks from changes our company’s operating rights, and response measures: None.

(12) Litigation and non-litigation events

A. Outcomes of major litigious, non-litigious, or administrative disputes last year or this year to date that have been determined or are still proceeding and that may have serious impact on shareholder income or share prices: None.

B. Outcomes of major litigious, non-litigious, or administrative disputes last year or this year to date involving our company’s directors, supervisors, and large shareholders holding more than 10% of shares, that have been resolved or are still proceeding and that may have serious impact on shareholder income or share prices: None.

(13) Other major risks and response measures: None.

7. Other important issues: None.

# VIII. Special items

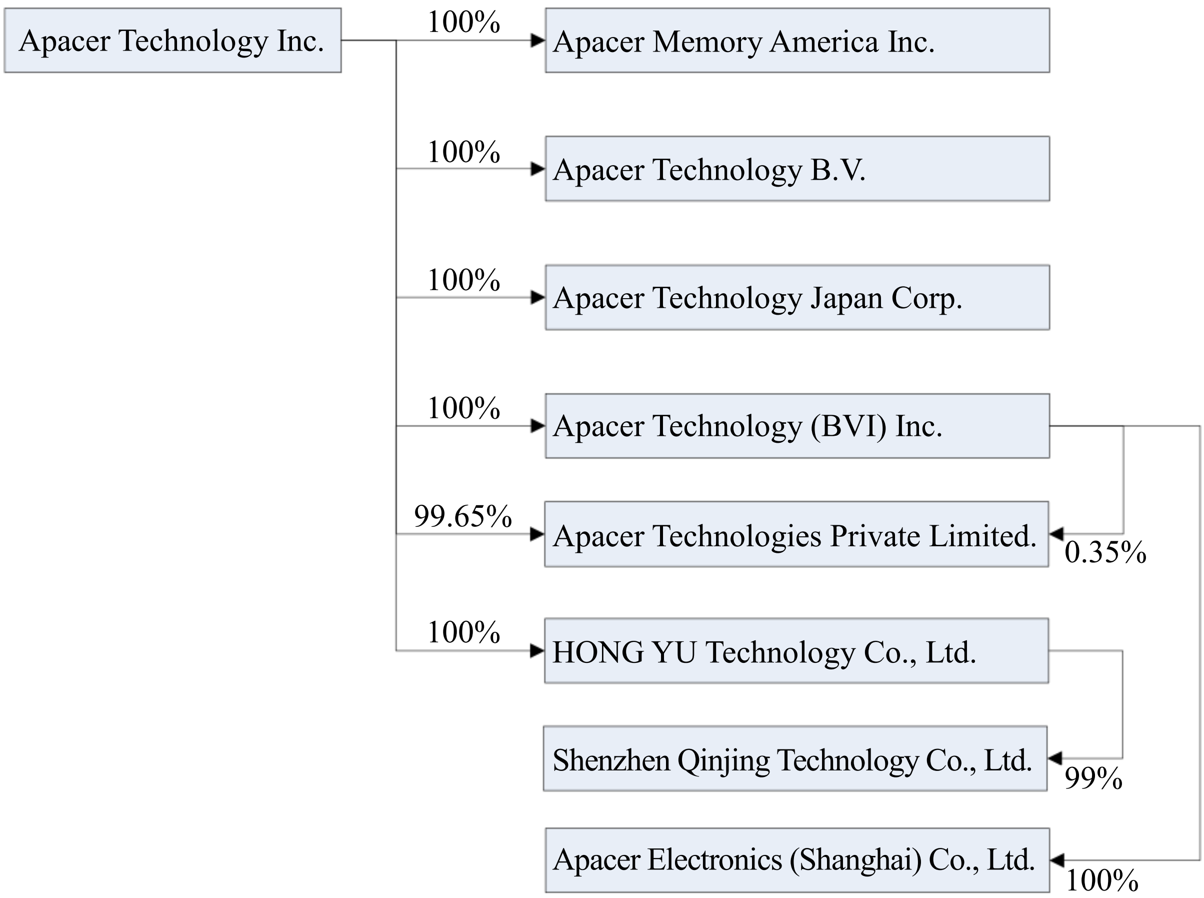
1. Information on affiliated companies

   (1) Consolidated business report of affiliated companies

      A. Overview of affiliated companies

         (A) Organization chart of affiliated companies

December 31, 2019



(B) Basic information of each company

December 31, 2019

| Company name | Date of establishment | Address | Amount of paid-up capital | Main business items |
|---|---|---|---|---|
| Apacer Memory America Inc. | 1997.10.14 | 46732 Lakeview Blvd., Fremont, CA 94538 | USD 20,000 (USD:TWD=1:29.98) | Sales of memory modules, small storage memory cards and consumer electronics |
| Apacer Technology (BVI) Inc. | 1997.02.17 | 3rd Floor, J & C Building, Wickhams Cay 1, Road Town, Tortola, British Virgin Islands | USD 550,000 (USD:TWD=1:33.60) | Professional investment and foreign stock holding |
| Apacer Technology Japan Corp. | 2000.07.21 | Roppoto Fa Center, 1-9-1, Nagase, Mihama-Ku, Chiba-Shi, Chiba, Japan | JPY 10,000,000 (JPY:TWD=1:0.276) | Sales of memory modules, small storage memory cards and consumer electronics |
| Apacer Technologies Private Limited | 2007.02.06 | 1874, South End C Cross, 9th Block Jayanagar, Bangalore-560069, India | INR 1,387,022 (INR:TWD=1:0.42) | Sales of memory modules, small storage memory cards and consumer electronics |
| HONG YU Technology Co., Ltd. | 2001.01.02 | Room 901, Yip Fung Building, No. 2-12, D'Aguilar Street, Cnetral, Hong Kong. | HKD 5,000,000 (HKD:TWD=1:4.30) | Sales of memory modules, small storage memory cards and consumer electronics |
| Apacer Technology B.V. | 1998.02.17 | Science Park Eindhoven 5051 5692 EB Son, The Netherlands | USD 79,513 (USD:TWD=1: 29.98) | Sales of memory modules, small storage memory cards and consumer electronics |
| Apacer Electronics (Shanghai) Co., Ltd. | 2001.10.16 | Room 207, No.80 Xinling Road, Shanghai Pilot Free Trade Zone, China | USD 500,000 (USD:TWD=1: 29.98) | Sales of memory modules, small storage memory cards and consumer electronics |
| Shenzhen Qijing Technology Co., Ltd. | 2016.06.03 | Room 2505, Block A, World Trade Plaza, Fuhong Road, Futian Avenue, Futian District, Shenzhen, China | RMB 5,000,000 (RMB:TWD=1: 4.30) | Sales of gaming products, gaming peripherals and consumer electronics |

(C) Information on the same shareholders involved with or controlling affiliated companies: None.

(D) Operating activities of the affiliated companies:

Our company's main business activities are the manufacture and sale of memory modules and small storage memory cards. The main business activities of our reinvested companies are the purchase and sale of memory modules and small storage memory cards.

(E) Information on directors, supervisors, and general managers of the affiliated companies.

December 31, 2019

| Company name | Title | Name or representative | No. of shares held | |
|---|---|---|---|---|
| | | | Number of shares | Shareholding ratio |
| Apacer Technology (BVI) Inc. | Director | Apacer Technology Inc. Representative: Austin Chen | 2,635,775 shares | 100% |
| Apacer Memory America Inc. | Director | Apacer Technology Inc. Representative: Xu Qin-Yi | 20,000 shares | 100% |
| Apacer Technology B.V. | Director | Apacer Technology Inc. Representatives: Chang Chia-kun and Zheng Cui-Wen | 79,513 shares | 100% |
| Apacer Technology Japan Corp. | Director | Apacer Technology Inc. Representatives: Chang Chia-kun, Luo Rong-fa, Lin Xia-yun | 200 shares | 100% |
| HONG YU Technology Co., Ltd. | Director | Apacer Technology Inc. Representatives: Lai Zi-wen, Luo Xue-ru, Cyuan Sen-yu | 5,000,000 shares | 100% |

| Company name | Title | Name or representative | No. of shares held | |
|---|---|---|---|---|
| | | | Number of shares | Shareholding ratio |
| Apacer Electronics (Shanghai) Co., Ltd. | Director | Apacer Technology Inc. Representatives: Chang Chia-kun, Lai Tzu-min, Quan Sen-yu | Contribution USD 500,000 | 100% |
| Apacer Technologies Private Limited | Director | Apacer Technology Inc. Representatives: Lai Zi-wen, Chen Zhu-ming, Naveen | 28,799 shares | 100% |
| Shenzhen Qinjing Technology Co., Ltd. | Director | Apacer Technology Inc. Representative: Luo Xue-ru | Contribution RMB 4,985,714 | 99% |

B. Business status of the affiliated enterprises

Unit: TWD 1,000

| Company name | Capital amount | Total assets | Total liabilities | Net worth | Operatin g revenue | Operating income | Income for the current period (after tax) | Earnings per share (TWD) |
|---|---|---|---|---|---|---|---|---|
| Apacer Memory America Inc. | 610 | 312,061 | 69,874 | 242,187 | 896,248 | 32,132 | 25,075 | 1,253.80 |
| Apacer Technology (BVI) Inc. | 18,542 | 10,105 | 0 | 10,105 | 0 | (62) | (4,756) | (1.85) |
| Apacer Technology Japan Corp. | 2,918 | 31,809 | 16,097 | 15,712 | 138,031 | 988 | (217) | (1,084.66) |
| Apacer Technologies Private Limited | 915 | 1,736 | 303 | 1,433 | 2,052 | 61 | 36 | 1.25 |
| HONG YU Technology Co., Ltd. | 20,917 | 21,248 | 9,306 | 11,942 | 189,829 | 2,162 | 529 | 0.10 |
| Apacer Technology B.V. | 130,469 | 63,981 | 29,870 | 34,111 | 544,694 | 11,755 | 8,978 | 112.91 |
| Apacer Electronics (Shanghai) Co., Ltd. | 15,358 | 93,736 | 86,852 | 6,884 | 432,725 | (3,874) | (4,926) | - |
| Shenzhen Qinjing Technology Co., Ltd. | 22,975 | 15,219 | 31 | 15,188 | 56 | (1,417) | (1,322) | - |

(2) Consolidated financial statements of the affiliated enterprises: Please refer to pages 155 - 221.

(3) Affiliates reports: Not applicable.

2. Private equity securities transactions during last year and this year to date:
None.

3. Shares of this (parent) company held or disposed of by subsidiaries:
None.

4. Other necessary additional statements:
None.

5. Matters that have a significant impact on shareholders' income or securities prices as set forth in Article 36, paragraph 3, subparagraph 2 of the Securities and Exchange Act during last year and this year to date:
None.

Apacer Technology Inc.

Chairman: Austin Chen

Date of publication: April 23, 2020

Apacer Technology Inc.

2019 Annual Report

Apacer

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