5. Operational Highlights

5.1 Business Activities

5.1.1 Business Scope

As the founder and a leader of the dedicated semiconductor foundry segment, TSMC has built its reputation by offering advanced and specialty wafer production processes and unparalleled manufacturing efficiency. TSMC strives to provide the best overall value to its customers, and the success of TSMC's business is manifested in the success of its customers.

TSMC provides a full range of integrated semiconductor foundry services that fulfill the increasing variety of customer needs. In the process, it has experienced strong growth by building close relationships with customers. Semiconductor suppliers from around the world trust TSMC with their manufacturing needs, thanks to its unique integration of cutting-edge process technologies, pioneering design services, manufacturing productivity and product quality.

In May 2009, TSMC established the New Businesses organization to explore non-foundry related business opportunities. In August 2011, the New Businesses organization was formally separated from the main TSMC organization as two wholly owned subsidiaries, TSMC Solid State Lighting Ltd. (TSMC SSL) and TSMC Solar Ltd., responsible for solid state lighting and solar business activities, respectively. In January 2015, TSMC announced a sale of all TSMC SSL shares held by TSMC and TSMC's subsidiary to Epistar Corp. After this transaction, TSMC completely exits TSMC SSL.

5.1.2 Customer Applications

TSMC manufactured more than 8,800 different products for over 450 different customers in 2014. These chips are used across the entire spectrum of electronic applications, including computers and peripherals, information appliances, wired and wireless communications systems, automotive and industrial equipment, consumer electronics such as DVDs, digital TVs, game consoles, digital still cameras (DSCs), and many other applications.

The rapid evolution of end products drives our customers to utilize TSMC's innovative technologies and services, while at the same time spurring TSMC's own development of technology. As always, success depends on leading rather than following industry trends.

5.1.3 Consolidated Shipments and Net Revenue in 2014 and 2013

Unit: Shipments (12-inch equivalent wafers) / Net Revenue (NT$ thousands)

		2014		2013	
		Shipments	Net Revenue	Shipments	Net Revenue
Wafer	Domestic (Note 1)	1,737,743	112,726,728	1,249,092	79,982,833
	Export	6,524,853	611,020,808	5,713,560	480,702,380
Others (Note 2)	Domestic (Note 1)	N/A	5,766,553	N/A	5,118,245
	Export	N/A	33,292,376	N/A	31,220,739
Total	Domestic (Note 1)	1,737,743	118,493,281	1,249,092	85,101,078
	Export	6,524,853	644,313,184	5,713,560	511,923,119

Note 1: Domestic means sales to Taiwan.
Note 2: Others majorly include revenue associated with mask making, design services, and royalties.

5.1.4 Production in 2014 and 2013

Unit: Capacity / Output (12-inch equivalent wafers) / Amount (NT$ thousands)

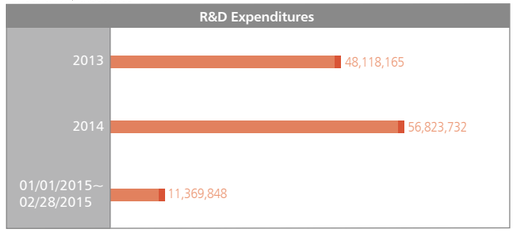
Wafers			
Year	Capacity	Output	Amount
2014	8,175,183	8,206,469	426,706,846
2013	7,309,680	6,754,534	301,305,826

5.2 Technology Leadership

5.2.1 R&D Organization and Investment

In 2014 TSMC continued to invest in R&D with Total R&D expenditure amounting to 8% of revenue, a level that equals or exceeds the RD investment of many other high technology leaders.

Amount: NT$ thousands



TSMC recognizes that the technology challenge required to extend Moore's Law, the business law behind CMOS scaling, is becoming increasingly complex. The efforts of the R&D organization are focused on enabling the Company to continuously offer its customers first-to-market, leading-edge technologies and design solutions that contribute to their product success in today's complex and challenging market environment. In 2014 the R&D organization met these challenges by introducing into manufacture the industry leading 16FF+ technology, the first integrated technology platform to make use of 3D FinFET transistors. The R&D organization continues to strengthen the pipeline of technology innovations that are required to maintain technology leadership. The 10nm technology advanced development continues with the goal of entering risk production in 2015, while the 7nm technology has now moved into the advanced development stage.

In addition to CMOS logic, TSMC conducts research and development on a wide range of other semiconductor technologies that provide the functionality our customers require for mobile SoC and other applications. Highlights achieved in 2014 include: introduction of our TSV platform, and expansion of the range of CoWoS® 3D packaging technology to the most advanced Si technologies; development of ultra-low power RF technologies in 28nm, 40nm and 55nm nodes aimed at meeting the demand for IoT (Internet-of-Things) applications; the introduction into manufacturing of MEMs process technologies for accelerator and microphone applications, and a 100V GaN power transistor technology.

TSMC maintains a network of important external R&D partnerships and alliances with world-class research institutions, such as IMEC, the respected European R&D consortium, where TSMC is a core partner. TSMC also provides funding for nanotechnology research at leading universities worldwide to promote innovation and the advancement of nano-electronic technology. In 2014 TSMC announced the formation of joint research centers at National Tsing Hua University and National Cheng Kung University, with the aim of developing greater understanding into the devices and materials used in the manufacture of advanced Si technologies.

5.2.2 R&D Accomplishments in 2014

R&D Highlights

- 20nm Technology

TSMC's 20nm technology was successfully qualified for volume manufacture and currently in mass production.

- 16nm Technology

16FF+ technology passed full reliability qualification in the fourth quarter of 2014. This technology features FinFET transistors with a third generation High-k/Metal Gate process, a fifth generation of transistor strain process, and advanced 193nm lithography. This enhanced version of TSMC's 16FF technology operates 40% faster than planar 20nm System-on-Chip technology (20SoC) or consumes 50% less power at the same speed. More than 15 customers and IP vendors have verified their IP with the 16FF+ technology.

- 10nm Technology

10nm technology will offer substantial power reduction for the same chip performance compared to earlier technology generations. Development activities in 2014 focused on manufacturing baseline process setup, yield learning, transistor performance improvement, and reliability evaluation. TSMC plans to enter 10nm risk production in 2015 and volume production in 2016.

- 7nm Technology

2014 saw the introduction of 7nm technology into advanced development. The 7nm technology will offer substantial density improvement and power reduction for the same chip performance compared to 10nm technology. Development activities in 2015 will focus on selection of transistor architecture, baseline manufacturing process setup for both transistors and interconnects, and initial reliability evaluations. TSMC plans to enter 7nm full development in 2016 for risk production in 2018.

- Lithography

The focus of TSMC's R&D efforts in lithography is 10nm development. This technology requires special resolution enhancement techniques to enable immersion tools to image geometries beyond 16nm. Coupling these enhancements with advanced patterning that was developed for the 20nm and 16nm nodes allows the immersion technique to meet 10nm requirements.

In 2014, TSMC received delivery of a second NXE3300 extreme ultraviolet (EUV) scanner. The associated process and equipment R&D is on-going. TSMC has been working with ASML to raise its capabilities to meet the requirements of the 7nm technology node. Looking beyond 7nm, multiple e-beam direct-write lithography (MEB DW) is being investigated as a lithography solution.

- Mask Technology

Mask technology is an integral part of our advanced lithography. Having completed the transfer of mask technology for the 16nm node to the mask production organization in 2014, R&D made substantial progress on developing mask technology for the 10nm node. The R&D team also made solid progress in the mask technology for EUV lithography, continuing to work with suppliers and consortia in developing the required infrastructure.

Integrated Interconnect and Packaging

- 3D IC

TSMC qualified for manufacture a new TSV-based platform in 2014. This is an important industrial milestone to integrate TSV with active devices. The CoWoS® technology continues to expand its application from FPGA to network and to high performance computing. The choice of top dies on CoWoS® technology is also expanding quickly from 65/40nm to the most advanced 20nm and 16nm FinFET technology. In parallel with TSV-based platforms above, InFO, or integrated fan out, is being developed as a non-TSV technology for cost-sensitive applications such as mobile and consumer products. It is expected to become the most important backend technology for TSMC in the next few years. An ultra-thin, fine pitch InFO_PoP packaging technology has been successfully demonstrated with outstanding characteristics and qualified for manufacture.

- Advanced Package Development

TSMC offers a wide variety of lead-free packaging technologies for mobile/handheld devices and applications. In 2014, TSMC qualified 16nm FinFET Si with ultra-fine pitch copper (Cu) bump BoT (Bump-on-Trace) packaging technology, and the innovative Fan-in WLP technology (UBM-Free Fan-in WLP) with excellent reliability performance.

- Advanced Interconnect

Development of low resistance Cu and low capacitance dielectric continued to be the primary focus in 2014. At the 10nm node, a new patterning process and a novel dielectric scheme have been developed to shrink line width/space and reduce the capacitance between copper lines. For the 7nm node and beyond, TSMC has developed a new advanced patterning scheme that allows copper line width and spacing to be further reduced. A low resistivity metal scheme was developed. The circuit delay of copper lines developed with these advanced processes is highly competitive and is lower than that projected by the International Technology Roadmap for Semiconductors (ITRS).

Advanced Transistor Research

Enhancing the speed and lowering the power requirements of advanced logic technologies requires innovation in transistor architectures and materials. TSMC is at the forefront of research in these areas with a focus on high mobility channel materials, such as germanium and III-V compound semiconductors. Record-breaking germanium transistor performance was recently achieved and reported at the 2014 IEDM.

Specialty Technologies

TSMC offers a broad mix of technologies to address the wide range of applications.

• Mixed Signal/Radio Frequency (MS/RF) Technology
TSMC has started to develop ultra-low power RF technologies in 28nm, 40nm and 55nm nodes aimed at the expected strong demand in low power and low cost IoT (Internet-of-Things) applications, and began development of a 0.18μm SOI process to replace traditional compound semiconductor-based solutions in cellar/wi-fi RF switch applications.

• Power IC/BCD Technology/Panel Drivers
The second generation of 0.18μm BCD technology has been extended to offer lower cost and higher performance devices, enabling more integration in mobile power ICs.

• Micro-electromechanical Systems (MEMS) Technology
In 2014, TSMC's modular MEMS technology was qualified for manufacture of accelerometers and high-resolution noise cancellation microphones. Future plans include development of next generation products, and BioMEMS applications.

• GaN Technology
TSMC is the first foundry to implement GaN technology in a 6-inch fab. The R&D team completed development and qualified for manufacture a high electron mobility transistor (100V E-HEMT) configuration for high power, high frequency applications with low Ron resistance and high breakdown voltage.

• Flash/Embedded Flash Technology
TSMC achieved several important milestones in embedded flash technologies. At the more mature 65nm/55nm node, NOR-based cell technologies, including 1-T cell and Split-Gate cell, successfully completed customer qualification. At the 40nm node, the split-gate cell technology was shipped for both automotive and consumer applications. Embedded flash development for the 28LP and 28HPM platforms is underway for such low leakage applications as smartcard, MCU and Automobile.

5.2.3 Technology Platform

TSMC provides customers with advanced technology platforms that include the comprehensive design infrastructure required to optimize design productivity and cycle time. These include: design flows for electronic design automation (EDA); silicon-proven IP building blocks, such as libraries; and simulation and verification design kits, i.e., process design kits (PDK) and technology files.

The availability of 16FF+ saw improvements in design infrastructure using an advanced CPU core as the vehicle to support customers' adoption of 16nm FinFET Plus (EDA tool certification results can be found on TSMC-Online). TSMC also extended its IP quality program (TSMC9000) to allow IP audits to be performed either at TSMC or at TSMC-certified laboratories. To help customers plan new product tape-outs incorporating IP/Library from TSMC Open Innovation Platform® (OIP) ecosystem, the OIP ecosystem now features a portal to connect customers to an ecosystem of 39 solution providers.

5.2.4 Design Enablement

TSMC's technology platforms provide a solid foundation for design enablement. Customers can design directly using the Company's internally developed IP and tools, or using those that are available via our OIP partners.

Tech File and PDK

TSMC provides a broad range of process design kits (PDK) for digital logic, mixed-signal, radio frequency (RF), high-voltage driver, CMOS Image Sensor (CIS) and embedded flash technologies across a range of technology nodes from 0.5μm to 16nm. In addition, TSMC provides technology files for: DRC, LVS, RC extraction, automatic place and route, and a layout editor to ensure process technology information is accurately represented in EDA tools. By 2014, TSMC has provided more than 7,000 technology files and more than 150 PDKs in TSMC-Online. There are more than 100,000 customer downloads of these files every year.

Library and IP

TSMC and its alliance partners offer our customers a rich portfolio of reusable IP, which are essential building blocks for many circuit designs. In 2014, over 60% of new tape-outs at TSMC adopted one or more libraries or IP from TSMC and/or our IP partners. In 2014, TSMC expanded its library and silicon IP portfolio to contain more than 8,500 items, a 28% increase over 2013.

Design Methodology and Flow

In 2014 TSMC addressed the critical design challenges associated with the new 16nm FinFET Plus technology for digital and SoC applications by announcing the readiness of reference flows through OIP collaboration that feature FinFET-specific design solutions and methodologies for performance, power and area optimization.

5.2.5 Intellectual Property

A strong portfolio of intellectual property rights strengthens TSMC's technology leadership and protects our advanced and leading edge technologies. In 2014, TSMC received a record breaking 1460 U.S. patents, as well as 450+ issued patents in Taiwan and the PRC, and other patents issued in various other countries. In 2014, TSMC ranked #23 in the "Top 50" U.S. patent grants. TSMC's patent portfolio now reaches almost 30,000 patents worldwide (including patent applications in queue). We continue to implement a unified strategic plan for TSMC's intellectual capital management. Strategic considerations and close alignment with the business objectives drive the timely creation, management and use of our intellectual property.

At TSMC, we have built a process to extract value from our intellectual property by aligning our intellectual property strategy with our R&D, operations, business objectives, marketing, and corporate development strategies. Intellectual property rights protect our freedom to operate, enhance our competitive position, and give us leverage to participate in many profit-generating activities.

We have worked continuously to improve the quality of our intellectual property portfolio and to reduce the costs of maintaining it. We plan to continue investing in our intellectual property portfolio and intellectual property management system to ensure that we protect our technology leadership and receive maximum business value from our intellectual property rights.

5.2.6 TSMC University Collaboration Programs

TSMC University Research Centers in Taiwan

TSMC has significantly expanded its interaction with universities in Taiwan with the establishment of four research centers located at the nation's most prestigious universities. The mission of these centers is twofold: to increase the number of highly qualified students who are suitable for employment in semiconductor industry, and to inspire university professors to initiate research programs that focus on the frontiers of semiconductor device, process and materials technology; semiconductor manufacturing and engineering science; and specialty technologies for electronic applications. Following the establishment of two research centers at National Taiwan University and National Chiao Tung University in 2013, two additional centers were set up at National Cheng Kung University and National Tsing Hua University in 2014. These centers are funded jointly by governmental agencies together with a commitment from TSMC of several hundred million Taiwan dollars and in-kind university shuttles. In 2014, several hundred high caliber students across Electronics, Physics, Materials Engineering, Chemistry, Chemical Engineering and Mechanical Engineering disciplines joined the research centers.

TSMC University Shuttle Program

The TSMC University Shuttle Program was established to provide professors at leading research universities worldwide with access to the advanced silicon process technologies needed to research and develop innovative circuit design concepts. This program links motivated professors and graduate students with enthusiastic managers at TSMC with the goals of promoting excellence in the development of advanced silicon design technologies, and the nurturing of new generations of engineering talent in the semiconductor field.

The program provides access to such silicon process technologies as 65nm and 40nm nodes for digital, analog/mixed-signal circuits and RF design, and the 0.11μm/0.18μm process nodes for micro-electromechanical system designs. Select research projects utilize the 28nm technology node. Participants in the TSMC University Shuttle Program include major university research groups in the U.S.: M.I.T., Stanford University, UC Berkeley, UCLA, University of Texas at Austin, and University of Michigan. In Taiwan, participants are: National Taiwan University, National Chiao Tung University, and National Tsing Hua University. Other participants include: Tsing Hua University in Beijing, The Hong Kong University of Science and Technology, and Singapore's Nanyang Technological University.

TSMC's University Shuttle Program participants recognize the importance of the program in allowing their graduate students to implement exciting designs such as low-power memories, analog-to-digital converters, and advanced radio-frequency and mixed-signal bio-medical systems. This is truly a "win-win" collaboration. In 2014, TSMC received specific letters of appreciation from professors at M.I.T., Stanford University, UC Berkeley, UCLA, University of Michigan, National Taiwan University and National Chiao Tung University.

5.2.7 Future R&D Plans

In light of the significant accomplishments of TSMC's advanced technologies in 2014, the Company plans to continue to grow its R&D investments. The Company plans to reinforce its exploratory development work on new transistors and technologies, such as 3D structures, strained-layer CMOS, high mobility materials and novel 3D IC devices. These studies

of the fundamental physics of nanometer CMOS transistors are core aspects of our efforts to improve the understanding and guide the design of transistors at advanced nodes. The findings of these studies are being applied to ensure our continued industry leadership at the 20nm and 16nm nodes and to extend our leadership to the 10nm and 7nm nodes. One of TSMC's goals is to extend Moore's Law through both innovative in-house work and by collaborating with industry leaders and academia. We seek to push the envelope in finding cost-effective technologies and manufacturing solutions.

With a highly competent and dedicated R&D team and its unwavering commitment to innovation, TSMC is confident of its ability to deliver the best and most cost-effective SoC technologies for its customers, thereby supporting the Company's business growth and profitability.

TSMC R&D Future Major Project Summary

Project Name	Description	Risk Production (Estimated Target Schedule)
10nm logic platform technology and applications	3rd generation FinFET technology for both digital and analog products	2015
7nm logic platform technology and applications	CMOS platform technology for SoC	2018
3D IC	Cost-effective solution with better form factor and performance for SiP	2015 ~ 2016
Next-generation lithography	EUV and multiple e-beam to extend Moore's Law	2015 ~ 2019
Long-term research	Special SoC technology (including new NVM, MEMS, RF, analog) and 5nm transistors	2015 ~ 2019

The above plans accounted for roughly 70% of the total R&D budget in 2015. The total R&D budget is currently estimated to be around 8% of 2015 revenue.

5.3 Manufacturing Excellence

5.3.1 GIGAFAB™ Facilities

TSMC's 12-inch fabs are a key part of its manufacturing strategy. The Company currently operates three 12-inch GIGAFAB™ facilities—Fab 12, Fab 14, and Fab 15—the combined capacity of which reached 5,283,000 12-inch wafers in 2014. Production within these three facilities supports 0.13μm, 90nm, 65nm, 40nm, 28nm, 20nm process technologies, and their sub-nodes. To provide leading edge manufacturing technologies, part of the capacity is reserved for research and development work and currently supports 10nm and beyond technology development. TSMC has developed a centralized fab manufacturing management system to pursue higher customer benefits of consistent quality and reliability performance, greater flexibility of demand fluctuations, faster yield learning and time-to-volume, and minimized costly product re-qualification. It enabled Fab 14 to accelerate 20nm capacity ramping to 60,000 wafers output per month in one quarter to satisfy customers' demand.

5.3.2 Engineering Performance Optimization

TSMC has implemented statistical process control, advanced equipment control, advanced process control, circuit probe data and integrated big data analysis systems to optimize equipment performance to match device performance.

TSMC engages in engineering big data analytics, and applies the technology in the management and control of equipment, processes and yields. The Company has developed various systems such as intelligent tool tuning, engineering big data mining, and equipment chamber matching. The intelligent automation systems, driven by the decisions based on big engineering data, assure the high efficiency and stability of TSMC's equipment. It also analyzes the correlations between electrical, physical measurements and production-related parameters to identify critical variables that influence product quality and yields, so as to fulfill customers' special process requirements and diversified product demand simultaneously.

Accurate modeling and control at each process stage drives intelligent module loop control. The process control dispatching via sophisticated computer-integrated manufacturing systems enables optimization from equipment to end products to achieve precision and lean operations in a sophisticated semiconductor manufacturing environment.

5.3.3 Precision and Lean Operations

TSMC's unique manufacturing infrastructure is tailored for a high product mix foundry environment. Following its commitment to manufacturing excellence, TSMC has equipped a sophisticated scheduling and dispatching system, full automated manufacturing, industry-leading automated materials handling systems and intelligent mobile devices, and employed Lean Manufacturing approaches to provide customers with on-time-delivery and best-in-class cycle time. Real-time equipment performance and productivity monitoring, analysis, diagnosis and control minimize production interruption and maximize cost effectiveness.

5.3.4 450mm Wafer Manufacturing Transition

TSMC joined the Global 450mm Consortium (G450C) located in the College of Nanoscale Science and Engineering (CNSE) of New York University at Albany, New York. The consortium includes five IC makers and CNSE (which represents New York State and provides the clean room facility), as well as key 450mm tool suppliers as associate members.

Currently, TSMC has 16 experienced employees working in the consortium. TSMC has assumed the Operation General Manager position in the consortium and commits to lead the industry for a cost-effective 450mm transition.

5.3.5 Raw Materials and Supply Chain Risk Management

In 2014, TSMC continued Supply Chain Risk Management review meetings periodically with operation, quality and business teams to proactively identify and manage risk of supply capacity insufficiency, quality issue and supply chain interruption. TSMC also worked with its suppliers to enhance the performance of quality, delivery, sustainability, and to support green procurement, environmental protection and safety.

Raw Materials Supply

Major Materials	Major Suppliers	Market Status	Procurement Strategy
Raw Wafers	F.S.T. S.E.H. Siltronic SUMCO SunEdison	These five suppliers together provide over 90% of the world's wafer supply. Each supplier has multiple manufacturing sites in order to meet customer demand, including plants in North America, Asia, and Europe.	•TSMC's suppliers of silicon wafers are required to pass stringent quality certification procedures. •TSMC procures wafers from multiple sources to ensure adequate supplies for volume manufacturing and to appropriately manage supply risk. •TSMC maintains competitive price and service agreements with its wafer suppliers, and, when necessary, enters into strategic and collaborative agreements with key suppliers. •TSMC regularly reviews the quality, delivery, cost, sustainability and service performance of its wafer suppliers. The results of these reviews are incorporated into TSMC's subsequent purchasing decisions. •A periodic audit of each wafer supplier's quality assurance systems ensures that TSMC can maintain the highest quality in its own products.
Chemicals	Air Products ATMI Avantor BASF Hong-Kuang MGC SAFC Wah Lee	These eight companies are the major suppliers for bulk and specialty chemicals.	•Most suppliers have relocated many of their operations closer to TSMC's major manufacturing facilities, thereby significantly improving procurement logistics. •The suppliers' products are regularly reviewed to ensure that TSMC's specifications are met and product quality is satisfactory.
Litho Materials	AZ Dow JSR Nissan Shin-Etsu Chemical Sumitomo T.O.K.	These seven companies are the major suppliers for worldwide litho materials.	•TSMC works closely with its suppliers to develop materials able to meet application and cost requirements. •TSMC and suppliers periodically conduct improvement programs of their quality, delivery, sustainability and green policy, to ensure continuous progress of TSMC's supply chain. •Some major suppliers have relocated or plan to duplicate their manufacturing site closer to TSMC's major manufacturing facilities, thereby significantly improving procurement logistics and reducing supply risks.
Gases	Air Liquide Air Products ATMI Linde Taiyo Nippon Sanso	These five companies are the major suppliers of specialty gases.	•The majority of the five suppliers are located in different geographic locations, minimizing supply risk to TSMC. •TSMC conducts periodic audits of the suppliers' quality assurance systems to ensure that they meet TSMC's standards.
Slurry, Pad, Disk	3M Air Products Asahi Glass Cabot Microelectronics Dow Chemical Fujifilm Planar Solutions Fujimi Kinik Sumitomo	These nine companies are the major suppliers for CMP materials.	•TSMC works closely with its suppliers to develop materials able to meet application and cost requirements. •TSMC and suppliers periodically conduct improvement programs of their quality, delivery, sustainability and green policy, to ensure continuous progress of TSMC's supply chain. •Most suppliers have relocated or duplicated their manufacturing sites closer to TSMC's major manufacturing facilities, thereby significantly improving procurement logistics and reducing supply risks.

Suppliers Accounted for at Least 10% of Annual Consolidated Net Procurement

Unit: NT$ thousands

Supplier	2014			2013		
	Procurement Amount	As % of 2014 Total Net Procurement	Relation to TSMC	Procurement Amount	As % of 2013 Total Net Procurement	Relation to TSMC
Company A	8,496,410	17%	None	4,925,966	12%	None
VIS	7,424,566	14%	Investee accounted for using equity method	6,993,964	17%	Investee accounted for using equity method
Company B	6,147,991	12%	None	4,812,417	11%	None
Company C	5,471,062	11%	None	4,401,215	11%	None
Others	23,487,560	46%		20,773,685	49%	
Total Net Procurement	51,027,589	100%		41,907,247	100%	

5.3.6 Quality and Reliability

A characteristic of TSMC's industry reputation is its commitment to providing customers with the best quality wafers and service for their products. Quality and Reliability (Q&R) services aim to achieve "quality on demand" to fulfill customers' needs regarding time-to-market, reliable quality, and market competition over a broad range of products.

Q&R technical services assist customers in the technology development and product design stage to design-in their product reliability requirements. Since 2008, Q&R has worked with R&D to successfully establish and implement new qualification methodology for High-k/Metal Gate (HKMG) as well as for FinFET structures in 2013. Q&R has collaborated with SEMI, Semiconductor Equipment and Material International, to establish an IC Quality Committee since May 2012 in order to enhance product quality of the semiconductor supply chain. For backend technology development, Q&R worked with R&D and the Backend Technology and Service Division to complete the Package-on-Package (PoP) technology development and started production at major outsource assembly and testing houses in 2014 for mobile product application. Over 100 million PoP have been shipped to customers without major quality issues.

In 2014, Q&R conducted a deep-dive audit on the new material suppliers for 20nm/16nm advanced technology and announced the incoming material quality requests to enhance supplier's delivery quality. Q&R also implemented innovative statistical matching methodologies to achieve the goal of enlarging the manufacturing window with better quality control. The scope of the methodology includes raw material, facility, metrology and process tools, wafer acceptance test (WAT) data and reliability performance. Since 2011, Q&R tightened the post-fab outgoing visual inspection criteria for wafer quality improvement to AQL 0.4% from AQL 0.65%.

To sustain production quality and to minimize risk to customers when deviations occur, manufacturing quality monitoring and event management span all critical stages – from raw material supply, mask making, and real-time in-process monitoring, to bumping, wafer sort and reliability performance. Failure, materials and chemical analysis play important roles in TSMC quality; these capabilities are used from the early stages of process development through assembly and packaging, including analysis of incoming materials, airborne molecular contaminants, and failure analysis of customer returns. In 2014, TSMC aggressively invested in state-of-the-art electron and ion microscopes and surface analysis capabilities. In view of the importance of ensuring the quality of incoming chemicals and materials, this year TSMC implemented detection of metal impurities in certain chemicals to the parts-per-trillion level. In collaboration with customers and suppliers, significant progress has been made in dynamic fault isolation, traditionally a domain of integrated device manufacturers and fabless companies. This effort will continue into 2015 with the addition of new capabilities to satisfy the needs of a broader range of customers and improve the quality of TSMC products.

In compliance with the electronic industry's lead-free and green IC package policy, Q&R qualified and released lead-free bumping and Cu bumping to satisfy customer demands, and made lead-free bump packages possible for 0.13μm, 45nm, 40nm, 28nm and 20SoC technology products as well as Cu bump package possible for 28nm and 20SoC by collaborating with the major outsource assembly and testing subcontractors. This enabled TSMC customers to introduce and ramp lead-free products with excellent assembly quality. In 2014, TSMC Q&R ramped wafer-level Chip Scale Package (CSP) to 20K per month, lead-free to 120K per month and Cu bumping to 12K per month without major quality issues. For mainstream technologies, Q&R qualified ultra, extreme low leakage and high endurance embedded Flash IP, IPD (Integrated Passive Device), hybrid of Copper, and Copper-Aluminum technology with customers. Q&R continues to build reliability testing and monitoring to ensure excellent manufacturing quality of specialty technologies on automotive, high-voltage products, CMOS image sensors, embedded-Flash memory and Micro-Electro-Mechanical System products.

TSMC Q&R is also responsible for leading the Company towards the ultimate goal of zero-defect production through the use of continuous improvement programs. Periodic customer feedback indicates that products shipped from TSMC have consistently met or exceeded their field quality and reliability requirements. In 2014, a third-party audit verified the effectiveness of the TSMC quality management system in compliance with ISO/TS 16949: 2009 and IECQ QC 080000: 2012 certificates requirements.

5.4 Customer Trust

5.4.1 Customers

TSMC's worldwide customers have diverse product specialties and excellent performance records in various segments of the semiconductor industry. Customers include fabless semiconductor companies, system companies and integrated device manufacturers, such as Advanced Micro Devices, Inc., Broadcom Corporation, Freescale Semiconductor, Inc., Huawei Tech, Marvell Technology Group Ltd., MediaTek Inc., NVIDIA Corporation, NXP Semiconductors, OmniVision Technologies, Qualcomm Inc., Texas Instruments Inc., etc.

Customer Service

TSMC believes that providing superior customer service is critical to enhancing customer satisfaction and loyalty, which is very important to retaining existing customers, attracting new customers, and strengthening customer relationships. With a dedicated customer service team as the main contact window for coordination and facilitation, TSMC strives to provide world-class, high-quality, efficient and professional services in design support, mask making, wafer manufacturing, and backend to achieve optimum experience for our customers and, in return, to gain customer's trust and sustain company profitability.

To facilitate customer interaction and information access on a real-time basis, TSMC-Online services offer a suite of web-based applications that provide a more active role in design, engineering, and logistics collaborations. Customers have 24-hour a day, seven-day-a-week access to critical information and are able to subscribe customized reports through TSMC-Online services. Design Collaboration focuses on content availability and accessibility, with close attention to complete, accurate, and current information at each level of the design life cycle. Engineering Collaboration includes online access to engineering lots, wafer yields, wafer acceptance test (WAT) analysis, and quality reliability data. Logistics Collaboration provides access to data on any given wafer lot's status in order, fabrication, assembly and testing, and shipping.

Customer Satisfaction

To assess customer satisfaction and to ensure that of our customers' needs are appropriately understood, TSMC conducts the Annual Customer Satisfaction Survey (ACSS) with most active customers, either by web or interview, through an independent consultancy.

Complementary with the survey, Quarterly Business Reviews (QBRs) are also conducted by the customer service team so that customers can give feedback to TSMC on a regular basis. Through both surveys and intensive interaction with customers by our customer facing teams, TSMC is able to maintain close touch with customers for better service and collaboration.

Customer feedback is routinely reviewed and considered by executives and then developed into appropriate improvement plans, all-in-all becoming an integral part of the customer satisfaction process with a complete closed loop. TSMC has maintained a focus on customer survey data as one of our key indicators of corporate performance, not just of past performance but also as a leading indicator of future performance. TSMC has acted on the belief that customer satisfaction leads to loyalty, and customer loyalty leads to higher levels of retention and expansion.

Customers that Accounted for at Least 10% of Annual Consolidated Net Revenue

Unit: NT$ thousands

Customer	2014			2013		
	Net Revenue	As % of 2014 Total Net Revenue	Relation to TSMC	Net Revenue	As % of 2013 Total Net Revenue	Relation to TSMC
Customer A	157,631,427	21%	None	130,563,982	22%	None
Others	605,175,038	79%		466,460,215	78%	
Total Net Revenue	762,806,465	100%		597,024,197	100%	

5.4.2 Open Innovation Platform® (OIP) Initiative

Innovation has long been both an exciting and challenging proposition. Competition among semiconductor companies is becoming more active and intense in the face of increasing customer consolidation, and the commoditization of technology at more mature, conventional levels. Companies must find ways to continue innovating in order to prosper further. Companies innovating openly from the "outside in" as well as from the "inside out" accelerate innovation through active collaborations with external partners. This active collaboration of TSMC with external partners is known as "Open Innovation". TSMC has adopted this path to innovate via the Open Innovation Platform® (OIP) initiative. OIP is a key part of the TSMC Grand Alliance.

The TSMC Open Innovation Platform® (OIP) initiative is a comprehensive design technology infrastructure that encompasses all critical IC implementation areas to reduce design barriers and improve first-time silicon success. OIP promotes the speedy implementation of innovation amongst the semiconductor design community and its ecosystem partners with TSMC's IP, design implementation and DFM capabilities, process technology and backend services.

A key element of OIP is a set of ecosystem interfaces and collaborative components initiated and supported by TSMC that more efficiently empowers innovation throughout the supply chain and, in turn, drives the creation and sharing of newly created revenue and profits. TSMC's Active Accuracy Assurance (AAA) initiative is critical to OIP, providing the accuracy and quality required by the ecosystem interfaces and collaborative components.

TSMC's Open Innovation model brings together the innovative thinking of customers and partners under the common goal of shortening design time, minimizing time-to-volume and speeding time-to-market and, ultimately, time-to-revenue. The model features:

- The foundry segment's earliest and most comprehensive EDA certification program delivering timely design tool enhancement required by new process technologies; and
- The foundry segment's largest, most comprehensive and robust silicon-proven intellectual properties (IPs) and library portfolio; and
- Comprehensive design ecosystem alliance programs covering market-leading EDA, library, IPs, and design service partners.

TSMC's OIP Alliance consists of 27 electronic design automation (EDA) partners, 39 IP partners, and 25 design service partners. TSMC and its partners proactively work together, and engage much earlier and deeper than before in order to address mounting design challenges at advanced technology nodes. Through this early and intensive collaboration effort, TSMC OIP is able to deliver the needed design infrastructure with timely enhancement of EDA tools, early availability of critical IPs and quality design services when customers need them. This is critical to success in order for customers to take full advantage of the process technologies once they reach production-ready maturity.

In October 2014, TSMC hosted an OIP Ecosystem Forum at the San Jose Convention Center in California, with keynote addresses from TSMC executives as well as OIP ecosystem partners. The forum was well attended by both customers and ecosystem partners and demonstrated the value of collaboration through OIP to nurture innovations.

TSMC's OIP Partner Management Portal facilitates communication with our ecosystem partners for efficient business productivity. This portal is designed with an intuitive interface and can be linked directly from TSMC-Online.

5.5 Employees

5.5.1 Human Capital

Human capital is one of the most important assets of TSMC. The Company is committed to providing quality jobs with good compensation, meaningful work, and a safe work environment for its employees; moreover, it is dedicated to foster a dynamic and fun work environment. The Company's efforts in fostering a "Great Place to Work" are highly recognized, and TSMC has received many awards, including the major prize in Ministry of Labor's first "Work-Life Balance Award" in 2014.

TSMC believes that all employees should be treated with dignity and respect. The Company is committed to upholding workers' rights and respects internationally proclaimed human rights, as outlined by the United Nations Universal Declaration on Human Rights and the International Labor Organization's fundamental conventions on core labor standards.

At the end of 2014, TSMC and its subsidiaries had over 43,591 employees worldwide, including 4,385 managers, 18,552 professionals, 3,530 assistants, and 17,124 technicians. The following table summarized TSMC workforce at the end of February, 2015:

Workforce Structure for TSMC and Its Subsidiaries

		12/31/2013 (Note 1)	12/31/2014 (Note 1)	02/28/2015 (Note 2)
Job	Managers	4,078	4,385	4,368
	Professionals	17,205	18,552	18,691
	Assistant Engineer/ Clerical	3,236	3,530	3,561
	Technician	15,964	17,124	16,957
Total		40,483	43,591	43,577
Gender	Male (%)	57.5%	58.0%	58.3%
	Female (%)	42.5%	42.0%	41.7%
Education	Ph.D.	4.0%	4.2%	4.3%
	Master's	37.4%	37.9%	38.2%
	Bachelor's	25.8%	26.7%	26.6%
	Other Higher Education	11.9%	11.4%	11.4%
	High School	20.9%	19.8%	19.6%
Average Age (years)		33.5	34.1	34.1
Average Years of Service (years)		6.6	6.9	7.0

Note 1: The data shown no longer includes Xintec Inc. as it was deconsolidated in June 2013.
Note 2: The data shown no longer includes TSMC Solid State Lighting as all of its shares held by TSMC and TSMC's subsidiary were sold to Epistar Corporation. The transaction was completed on February 17, 2015.

5.5.2 Recruitment

The growth of TSMC relies on the continued services and contributions of its devoted employees; in order to strengthen the momentum of its growth, the Company is dedicated to recruiting professionals for all positions available. TSMC is an equal employment opportunity employer, and its practices center on the principles of open-and-fair recruitment. The Company evaluates all candidates according to their qualification as related to the requirement of each position, rather than race, gender, age, religion, nationality, or political affiliation.

Taiwan's Labor Standards Act states that companies may not employ workers under the age of 15, and that children between the age of 15 and 16 are not permitted to perform heavy or hazardous work. In addition, child labor is also strictly forbidden under International Labour Organization's (ILO) standards. The Company fully complies with the above-mentioned laws and standards. Management has never hired employees under 16 years of age since the Company's establishment and will not do so in the future.

Students with technological expertise are highly valued in talent sourcing. As such, TSMC established a total of four university-level research centers in National Taiwan University, National Chiao Tung University, National Tsing Hua University, and National Cheng Kung University since 2013. The mission of the centers is two-fold: to develop top graduate students for future employment, and to encourage selected academics to consolidate different research domains under one umbrella for more effective synergy. Under this mission, TSMC provides hundreds of millions of NT dollars in seed money for leveraging funding from the National Science Council.

In 2014, the above-mentioned four centers sponsored more than 100 faculty and hundreds of students across the fields of Electronics, Material Engineering, Physics, Chemistry, Chemical Engineering and Mechanical Engineering.

In order to cultivate a young talent pipeline for recruitment both locally and around the world, TSMC deploys a number of recruiting activities and university programs, including Joint Development Programs, University Shuttle Program, Summer Internship, Job Fairs in Taiwan, U.S., Singapore and India, as well as a series of Fresh Graduate Career Symposiums for soon-to-be graduates. These multiple channels effectively enable TSMC to recruit from targeted pools in support of the Company's constant growth.

TSMC's continuous growth requires constant talent sourcing and recruitment activities to support its business. The Company recruited over 3,200 managers, professionals, and administrative staffs, as well as over 2,300 assistants and technicians in 2014.

5.5.3 People Development

The development of employees is an integral and critical factor for the growth of a company; employees' learning and development should incorporate the essence of "systematic, disciplined and planned". TSMC is committed to cultivating a continuous and diverse learning environment, and it has initiated "TSMC Employee Training and Education Procedure" to ensure the Company's and individuals' development objectives can be achieved through the integration of internal and external training resources.

Based on the nature of the individual's job, work performance and career development path, the Company provides employees a comprehensive network of learning resources, including on-the-job training, classroom training, e-learning, coaching, mentoring, and job rotation. For each employee, a tailor-made Individual Development Plan (IDP) is provided.

The Company provides employees with a wide range of on-site general, professional, and management training programs. In addition to engaging external experts as trainers, hundreds of TSMC employees are trained to be qualified instructors to deliver their valuable know-how in internal training courses.

TSMC's training programs include:

- New Employee Training: includes basic training and job orientation for new employees. Furthermore, newcomers' managers and the Company's well-established Buddy System are in place to support the newcomers in their assimilation process in both corporate culture and work requirements.
- General Training: refers to training required by government regulations and/or Company policies, as well as training on general subjects for all employees or employees of different job functions. Such training includes subjects of industry-specific safety, workplace health and safety, quality, fab emergency response, languages, and personal effectiveness.
- Professional/Functional Training: provides technical and professional training required by different functions within the Company. TSMC offers training courses on equipment engineering, process engineering, accounting, information technology, and so forth.
- Management Training: programs are tailored to the needs of managers at all levels, including new, experienced, and senior managers; optional courses are also available.
- Direct Labor (DL) Training: enables employees of the production line in acquiring the knowledge, skills and attitudes they need to perform their jobs well and to pass the certification for operating equipment. Training includes DL Skill Training, Technician "Train-the-Trainer" Training, and Manufacturing Leader Training.

In 2014, TSMC conducted 1,453 internal training sessions, which translated to a company-wide total of 844,174 training hours with the participation of 536,493 attendees. Employees on average attended over 19 hours of training with the training expenses reaching NT$83 million.

Apart from internal training resources, our employees are also subsidized when taking external short-term courses, credit courses and degrees.

5.5.4 Compensation

TSMC provides a diversified compensation program that is competitive externally, fair internally, and adapted locally. TSMC upholds the philosophy of sharing wealth with employees in order to attract, retain, develop, motivate and reward talented employees. With excellent operating performance, employment at TSMC entitles employees to a comprehensive compensation and benefits program above the industry average.

TSMC's compensation program includes a monthly salary, an employee cash bonus based on quarterly business results, and employee profit sharing when the Company distributes its profit each year.

The purpose of the employee cash bonus and profit sharing programs is to reward employee contributions appropriately, to encourage employees to work consistently toward ensuring the success of TSMC, and to link employees' interests with those of TSMC's shareholders. The Company determines the amount of the cash bonus and profit sharing based on operating results and industry practice in the Republic of China. The amount and form of the employee cash bonus and profit sharing are determined by the Board of Directors based on the Compensation Committee's recommendation, and the employee profit sharing is subject to shareholders' approval at the Annual Shareholders' Meeting. Individual awards are based on each employee's job responsibility, contribution and performance.

In addition to providing employees of TSMC's overseas subsidiaries with a locally competitive base salary, the Company grants annual bonuses as a part of total compensation. The annual bonuses are granted in line with local regulations, market practices, and the overall operating performance of each subsidiary, to encourage employees' commitment and development within the Company.

5.5.5 Employee Engagement

Taiwan's Labor Standards Act and the fundamental convention of ILO prohibit all forms of forced or compulsory labor. TSMC stands firmly with the protocols and never forced labor from involuntary persons with menace of any penalty.

The Company encourages employees to maintain a healthy and well-balanced life while making use of their time spent at work with high efficiency and better effectiveness. To enrich employees' work experience, TSMC continuously implements programs to enhance their communication, well-being, benefit, recognition and rewards. The various initiatives include the following communication, benefit and recognition programs:

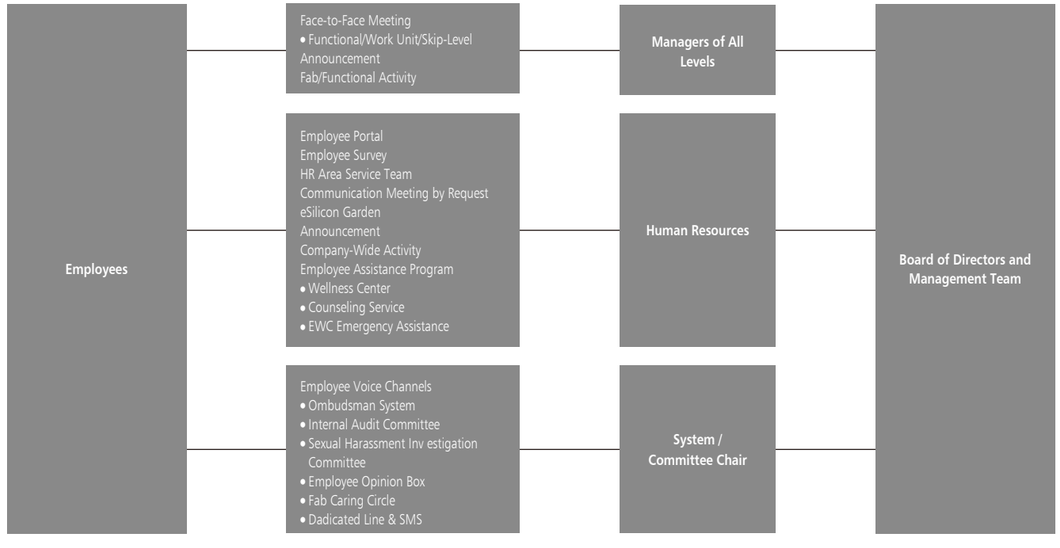
Employee Communication

TSMC values two-way communication and is committed to keeping the communication channels between the management level, subordinates and peers open and transparent. To ensure that employees' opinions and voices are heard, and their issues are addressed effectively, impartial submission mechanisms, including quarterly labor-management communication meetings, are in place to provide timely support. Our continuous efforts lie in reinforcing mutual and timely employee communication, based on multiple channels and platforms, which in turn fosters harmonious labor relations and creates a win-win situation for the Company and employees.

A host of two-way communication channels are constructed to maintain the unobstructed flow of information between managers and employees, including:

- Regular communication meetings are held for the various levels of managers and employees.
- Periodic employee satisfaction surveys are conducted, with follow-up actions based on the survey findings.
- The corporate intranet, *myTSMC*: the website features Chairman's Talk, corporate messages, Executive interviews, and other activities of interest to employees.
- *eSilicon Garden*: the website hosting TSMC's internal electronic publication is updated on a bi-weekly basis with inspirational content featuring outstanding teams and individuals, as well as major activities of the Company.
- Complaints regarding major management, financial, and auditing issues are handled by the following channels with high level of confidentiality:
  - The independent Audit Committee; and
  - Ombudsman system led by an appointed Vice President.
- Employee Opinion Box provides a channel for employees to express their suggestions or opinions regarding their work and the overall work environment.
- Fab Caring Circle in each fab takes care of the issues related to employees' work and personal life; the system is dedicated mainly to direct labors (DL) of the Company.

TSMC Internal Communication Structure



The establishment of the above effective communication channels is one of the key factors contributing to TSMC's cooperative employee relationship over the years. Under R.O.C. law, employees are granted the right to organize labor unions, and TSMC respects this important right and complies with applicable laws prohibiting activities that hinder our employees' freedom of association. As of this writing, we have not seen any recent union activity from our employees.

In 2014 and as of the date of this Annual Report, there had been no loss resulting from labor disputes.

Employee Benefit Programs

- Convenient on-site services: cafeterias, laundry services, convenience stores, travel, banking, housing, and commuting assistance—are accessible for employees in the fabs.
- Comprehensive health enhancement programs: physical care and psychological consultation services. Five free counseling sessions are offered to TSMC employees on an annual basis, with extension available depending on the individual's needs. Other programs include annual health check, weight control, outpatient services, smoking secession, exercise promotion campaign, massage service, sleep therapy, abdominal and neck x-ray, female care, blood donation, liver disease prevention, as well as seminars to raise awareness of personal health.
- Diverse employee welfare programs: including 72 hobby clubs, 33 speeches covering various topics (in 2014), Sports Day, and Family Day. In addition, holiday bonuses, marriage bonuses, condolence allowances and emergency subsidies are also available to cater to employees' needs.
- Premium Sports Center: a variety of workout facilities available to all employees and their families, as well as exercise sessions conducted by professional instructors.
- Flexible Preschool Service: the childcare service, operated to meet employees' work schedules, is available in a total of three fabs in Hsinchu and Tainan.

Employee Recognition

TSMC sponsors various internal award programs to recognize employees' outstanding achievement, both as a team or on the individual level. With these award programs, TSMC aims to encourage employees' sustainable development that in turn adds to the Company's competitive advantage.

The award programs include:

- TSMC Medal of Honor, presented exclusively by the Chairman, recognizes those who contribute to the Company's business performance significantly.
- TSMC Academy recognizes outstanding TSMC scientists and engineers whose individual technical capabilities make significant contributions to the Company.
- Outstanding Engineer Award for each fab and Total Quality Excellence Award recognize employees' continuous efforts in creating value for the Company.
- Service Award represents TSMC's appreciation toward senior employees' dedication and commitment to the Company.
- Excellent Instructor Award praises the outstanding performance and contribution of the Company's internal instructors in training courses for employees.
- Function-wise awards dedicated to innovation, including Idea Forum, and TQE Awards, etc.

Apart from corporate-wide awards, in 2014, TSMC employees continued to be recognized through a host of prestigious external awards, including Outstanding Engineer Award, Outstanding Young Engineer Award, National Model Worker Award, and National Industrial Innovation Award.

5.5.6 Retention

Continuous growth underlies the commitment of TSMC towards its stockholders and employees, and the retention of outstanding employees is crucial in fulfilling this commitment. From employee's initial adaptation to professional and career development, TSMC works proactively to provide employees with good compensation, innovative, meaningful and fun work, as well as a safe work environment.

Employees' overall satisfaction with the Company's efforts are reflected in the 2014 TSMC Core Values Survey, of which 97% of participants agreed that they are willing to commit fully in their work to make TSMC an even more successful company; while 95% of them concurred with the statement that they are willing to contribute their talents to TSMC and grow together with the Company for the next five years.

In 2014, the Company recorded a healthy and manageable turnover rate of 6%.

5.5.7 Retirement Policy

TSMC's retirement policy is set according to the Labor Standards Act and Labor Pension Act of the Republic of China. With the Company's sound financial system, TSMC ensures employees a solid pension contribution and payments, which encourages employees to set long-term career plans and raises their commitment to TSMC.

5.6 Material Contracts

Shareholders Agreement

Term of Agreement:
Effective as of 03/30/1999 and may be terminated as provided in the agreement
Contracting Parties:
Koninklijke Philips Electronics N.V. (Philips) and EDB Investments Pte Ltd. (EDBI)
(In September 2006, Philips assigned its rights and obligations under this agreement to Philips Semiconductors International B.V. which has now been renamed NXP B.V. In November 2006, NXP B.V. and TSMC purchased all SSMC shares owned by EDBI; EDBI is no longer a contracting party to this agreement.)
Summary:
TSMC, Philips and EDBI had formed a Singapore joint venture "Systems on Silicon Manufacturing Company Pte Ltd." (SSMC) for providing semiconductor foundry services. Philips Semiconductor (now NXP B.V.) and TSMC are committed to purchasing a certain percentage of SSMC's capacity.

Technology Cooperation Agreement

Term of Agreement:
03/30/1999 - 03/29/2004, automatically renewable for successive five-year terms until and unless either party gives written notice to terminate one year before the end of then existing term
Contracting Party:
Systems on Silicon Manufacturing Company Pte Ltd. (SSMC)
Summary:
TSMC agreed to transfer certain process technologies to SSMC, and SSMC agreed to pay TSMC a certain percentage of the net selling price of SSMC products.

Patent License Agreement

Term of Agreement:
12/20/2007 - 12/31/2017
Contracting Party:
A multinational company
Summary:
The parties entered into a cross licensing arrangement for certain semiconductor patents. TSMC pays license fees to the contracting company.

Manufacturing, License, and Technology Transfer Agreement

Term of Agreement:
04/01/2004 - 03/31/2006, automatically renewable for successive one-year terms until and unless both parties decide otherwise by mutual consent in writing
Contracting Party:
Vanguard International Semiconductor Corporation (VIS)
Summary:
VIS reserves certain capacity to manufacture TSMC products on mutually agreed terms. TSMC may also transfer certain technologies to VIS, for which it will in return receive royalties from VIS.

Investment Agreement and Shareholder Agreement

Term of Investment Agreement:
Effective as of 08/05/2012
Term of Shareholder Agreement:
Effective as of 10/31/2012 and may be terminated as provided in the agreement
Contracting Party:
ASML Holding N.V. (ASML)
Summary:
TSMC joined the Customer Co-Investment Program of ASML Holding N.V. (ASML) and entered into the investment agreement and shareholder agreement. The agreements include an investment of EUR837,815,664 by TSMC Global to acquire a non-voting 5% in ASML's equity with a lock-up period of 2.5 years.

Research and Development Funding Agreement

Term of Agreement:
10/31/2012 - 12/31/2017
Contracting Party:
ASML Holding N.V. (ASML)
Summary:
TSMC shall provide EUR276 million to ASML's research and development programs from 2013 to 2017.

Note: TSMC is not currently party to any other material contract, other than contracts entered into in the ordinary course of our business. The Company's "Significant Contingent Liabilities and Unrecognized Commitments" are disclosed in Annual Report section (II), Financial Statements, page 71-72.