

COMPANY PROFILE

Intel Corp

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COMPANY OVERVIEW

Intel Corp (Intel) is an integrated digital technology company in the US. The company designs and develops integrated digital technology products and components for the computing and communications industries. It offers processors, chipsets, motherboards, solid state drives, server products, wired and wireless connectivity products, software and applications and consumer electronics. It also provides software and services, which focus on security and technology integration. Intel sells its products and solutions to original equipment manufacturers (OEMs), industrial and communications equipment manufacturers and original design manufacturers (ODMs). It sells processors under various brand names such as Intel Quark, Intel Atom, Intel Celeron, Intel Pentium, Intel Xeon, Intel Xeon Phi, and Intel Itanium. The company's products find application in notebooks, tablets, servers, smartphones, 2 in 1 systems, desktops, wearables, transportation systems and retail devices. It has business operations across the Americas, Asia-Pacific, the Middle East and Europe. Intel is headquartered in Santa Clara, California, the US.

The company reported revenues of (US Dollars) US\$62,761 million for the fiscal year ended December 2017 (FY2017), an increase of 5.7% over FY2016. In FY2017, the company's operating margin was 27.5%, compared to an operating margin of 21.5% in FY2016. In FY2017, the company recorded a net margin of 15.3%, compared to a net margin of 17.4% in FY2016.

KEY FACTS

Head Office	Intel Corp 2200 Mission College Blvd Santa Clara California Santa Clara California USA
Phone	1 408 7658080
Fax	
Web Address	www.intel.com
Revenue / turnover (USD Mn)	62,761.0
Financial Year End	December
Employees	102,700
NASDAQ Ticker	INTC

SWOT ANALYSIS

Intel Corp (Intel) designs and manufactures advanced integrated digital technology platforms. A strong and successful research and development (R&D) model, integrated manufacturing network, and improved financial performance are the major strengths of the company, even as vulnerability of chips to cyber-attack, concentrated customer base and product gaps in the mobility segment remain major causes for concern. In the future, positive outlook for IoT market, NAND flash market, cloud computing market and focus on artificial intelligence (AI) technology could provide growth opportunities to the company. However, intense competition, privacy risks and foreign exchange fluctuations could affect its business operations.

<p>Strength</p> <p>Financial Performance Research and Development Model Integrated Manufacturing Network</p>	<p>Weakness</p> <p>Concentrated Customer Base Increases Business Risk Vulnerability of Chips to Cyber-attack</p>
<p>Opportunity</p> <p>Positive Outlook for NAND Flash Market Growing IoT Market Increased Adoption of Cloud Computing Services Focus on Artificial Intelligence (AI)</p>	<p>Threat</p> <p>Foreign Exchange Risks Privacy Risks Intense Competition</p>

Strength

Financial Performance

Intel delivered an impressive financial performance in FY2017. Strong financial performance helps the company maintain its stand in the market and enables it to pursue growth and expansion plans. In FY2017, the company's revenue increased 5.7% to US\$62,761 million from US\$59,387 million in the FY2016. This was due to increase in revenue of data-centric businesses and PC-centric business by 16% and 3% respectively. Its operating income increased 28.6% from US\$12,782 million in FY2016 to US\$17,252 million in FY2017. This was due to efficient cost management by the company.

Research and Development Model

Intel has a strong and successful research and development (R&D) model. The company's R&D model is based on a global organization that focuses on a collaborative approach in identifying and developing new technologies, leading standards initiatives, and influencing regulatory policies to accelerate the adoption of new technologies, including joint path-finding conducted between researchers at Intel Labs and its business groups. The company centrally manages critical cross-business group product initiatives to align and prioritize its R&D activities across these groups. The company augments its R&D by investing

in companies or entering into agreements with companies that have similar R&D focus areas, and directly purchasing or licensing technology applicable to its R&D initiatives. Intel focuses its R&D efforts on advanced computing technologies, developing new microarchitectures, advancing silicon manufacturing process technology, delivering the next generation platforms, improving its platform initiatives, developing new solutions in emerging technologies including memory and the Internet of Things (IoT), besides developing software solutions and tools. As part of its R&D efforts, Intel introduced its flagship product, the Intel Core i9 processor family, and the 8th generation Intel Core processors in the FY2017. Intel also invested a significant amount on the development of the 7nm process technology in the current year. The company also enhances the functionality of the existing products with the integration of the new technologies. To this end, the company introduced 5th generation LTE modem, XMM 7560 modem, which was built on its 14nm process technology and family of 5G NR multi-mode commercial modems, XMM 8000 series modems. In FY2017, the company spent US\$13,098 million in its R&D activities, which as a percentage of revenue stood at 20.9%.

Integrated Manufacturing Network

One of the competitive advantages of Intel is the combination of network of manufacturing, assembly and test facilities with the global architecture design teams. Such a network enables the company to exercise more direct control over the processes, quality control, product cost, production timing, performance, power consumption, and manufacturing yield. Most of its competitors rely on third-party foundries and subcontractors such as Taiwan Semiconductor Manufacturing Company and GlobalFoundries for the manufacture and assembly, and test needs. The company provides foundry services as an alternative to such foundries. Intel manufactures products in its own facilities and established a strong leadership position in silicon process technology and manufacturing. In FY2017, the majority of its wafer manufacturing was carried out within the US at the company's facilities in Arizona, New Mexico and Oregon. Intel invested approximately 20% of its capital in ramping up its first memory fab, Fab 68, in FY2017. Half of the 3D NANDS that the company supplied at the end of 2017 were manufactured in Fab 68. It also increased the capacity of its 10nm process node in Oregon and Israel. The company's in-house manufacturing capabilities allow Intel to optimize performance, shorten the time to market, and scale new products more rapidly. The company also partners with other companies to accelerate the development of cost-effective and flexible manufacturing processes. In March 2018, the company collaborated with Micron Technology, Inc., a provider of innovative memory and storage solutions, to accelerate the development of the 3D NANDs.

Weakness

Concentrated Customer Base Increases Business Risk

Intel relies on a limited number of customers for the majority of its revenue. The company's three large customers accounted for 40% and 38% of its total revenue in the FY2017 and FY2016, respectively. The three large customers of the company were Dell, Lenovo, and HP, which accounted for 16%, 13%, and 11% of the revenue in FY2017. These three customers accounted for 36% of the accounts receivables at the end of FY2017. The loss of any one of its significant customers or the delay, even if only temporary, or cancellation of significant orders by any of these customers affects the company's revenue during the period of the deferral or cancellation and will harm its ability to achieve or sustain expected levels of

operating results. Concentration of device share among a few companies, and the corresponding purchasing power of these companies, may result in lower prices for the company's products which, if not accompanied by a sufficient increase in the volume of purchases, could have an adverse effect on Intel's revenue and margins.

Vulnerability of Chips to Cyber-attack

In January, 2018, Intel Chips, which were used in smartphones, PCs and millions of other devices, were subject to vulnerability, leaving many devices susceptible to cyber-attack and performance slowdowns. In the recent discovery of Google's researchers, processors running in most of the devices have a feature that makes them vulnerable to the attacks. This feature could enable the attacker to bypass the operating system security controls, giving away the secure data on that device. The remedy for this situation is to upgrade the operating systems, which could hamper the performance of the device by 30%. The potential security flaws could force consumer protection agencies and other regulators to start probes against such chip makers.

Opportunity

Positive Outlook for NAND Flash Market

Growth in the smartphone market increased the demand for NAND flash memory products in the recent times. The adoption of 3D NAND technology by Intel would enable it to enhance its market share in NAND flash market and increase revenue. According to in-house report, the global 3D NAND flash memory market is expected to reach over US\$39 billion at a CAGR of 33.7%, during 2016-22. SSDs are expected to be the growth drivers and the adoption of tablets and increase in the sales of smartphones are expected to increase the demand for NAND flash memory. SSDs have been steadily gaining popularity in recent years and are a potential threat to the conventional hard disk drives (HDDs) used in portable PCs. There has also been growing interest in SSDs as components in large server computers, which are expected to become an increasingly attractive solution for notebooks, car navigation systems, industrial equipment and digital video recorders. In order to enhance its operations in the NAND memory market, Intel initiated the transition of its manufacturing capacity from 2D NAND/3D NAND mix to 100% of 3D NAND in FY2017. In March 2018, Intel expanded its Optane technology family of products with the addition of Optane SSD 800P, which would enable fast system boot and multitasking. The company released the products in 800P in 58GB and 118GB capacities in the M.2 2280 form factor using an NVMe PCIe 3.0 x2 interface. In February 2018, it introduced SSD DC P4510 series for data center applications by using 64-layer TLC Intel 3D NAND, which enhances the storage capacity of the server.

Growing IoT Market

The IoT market is expected to grow significantly in the future. According to in-house report, the IoT market is expected to grow at a CAGR of 33% during 2016-21 to reach US\$662 billion by 2021. To meet the needs of the growing IoT market, the company accelerated the development and deployment of intelligent devices, creating systems by connecting legacy devices to the cloud and enabling end-to-end analytics to transform businesses. The company took certain initiatives to accelerate the development in its Internet of Things (IoT) technology capabilities. In February 2018, with a view to reducing the complexity of the IoT

development, Intel introduced IoT Request for Proposal (RFP)-Ready kits and IoT Market-Ready solutions to integrators and developers. In October 2017, the company introduced Secure Device Onboard (Intel SDO), a solution that automates and brings IoT devices online within seconds. Intel began providing this solution to the IoT platform providers as a service that they can offer to their customers. Using its IoT technologies, Intel also focuses on developing smart building solutions that would reduce operational inefficiencies and cost of maintenance. Intel intends to develop comprehensive IoT technology products and services through collaboration with other companies with expertise in technology. In January 2018, the company partnered with Rubikloud, a software startup based in Toronto, Canada. Intel would combine its IoT technology with Rubikloud's intelligent automation, enabling retailers to use artificial intelligence in their operations.

Increased Adoption of Cloud Computing Services

Cloud-based operations enable enterprises to scale their operations instantly, handle demand fluctuations, and access systems and services over a variety of devices at a lower cost. According to in-house research, the global cloud computing market is expected to grow at a CAGR of 28.3% to reach US\$69,929.6 million by 2022 from US\$18,687.2 million in 2017. During 2017-2022 forecast period, in terms of variants of cloud, Software-as-a-Service (SaaS) is expected to be the major contributor with a market share of 53.2%, followed by Infrastructure-as-a-Service (IaaS) with 24.3%, and Platform-as-a-Service with 22.5%. The US is expected to account for 58.3% market share, Europe (19.6%), Asia-Pacific (12.8%), the Middle East (0.2%), and Rest of the World (9.2%) during the forecast period.

In FY2017, Intel's Data Center Group accounted for 30.2% of the company's revenue and 18% of total operating profit. Its cloud service revenue increased 28% in FY2017 over that in FY2016. The company partners with more than 250 cloud service providers including reputed brands such as Alibaba, Amazon, Baidu, Facebook, Google, Microsoft and Tencent. In May 2017, the company introduced SSD DC P4500 series and SSD DC P4600 series of 3D NAND SSDs for data centers. The SSDs extend cloud storage solutions including software defined storage and infrastructure. SSD DC P4500 series enables the servers to store more data, while SSD DC P4600 series enables more workload per server

Focus on Artificial Intelligence (AI)

Intel's strategy towards AI is to focus on ensuring the access of the best platforms and flexible starting point for solving the AI problems for all data scientists, and developers around the world. The company made significant efforts that are aligned with this strategy. In March 2018, Intel's FPGA (field programmable gate array) technology was used by Microsoft's Search Engine Bing for the deployment of AI. Intel's FPGA technology enables Microsoft to deploy AI in its application to deliver intelligent search to users. In September 2017, it invested more than one billion in the AI ecosystem to accelerate fuel adoption and product innovation. In this investment, Intel partnered with start ups such as Mighty AI, Data Robot and Lumiata, among other companies that focus on the development of the AI technology. In October 2017, the company introduced Nervana Neural Network Processing (NNP), a technology that reinforces AI computing across several industries. The Nervana NNP would be used to deploy an entirely new set of AI applications that can maximize the amount of data processed and enables the customers in healthcare, social media, automotive, and weather to gain insights that transform their business. Nervana NNP products also enable the delivery of higher performance and enhance the scalability for AI models, which puts Intel on track with its goal of achieving 100 times greater AI performance by 2020. In addition

to artificial intelligence technology, the company also invests in the other innovative technologies that drive the future of industry. In August 2017, the company acquired Mobileye B.V., a sensor company that specialized in the development of computer vision and machine learning, data analysis, localization and mapping for Advanced Driver Assistance Systems and autonomous driving based in Israel. With this acquisition, in 2018, Intel was on its way to develop self-driving cars. The company, with Mobileye's expertise in computer vision, sensing, fusion, mapping, and driving policy, combined with its expertise in data center and 5G communication technologies, focuses on delivering a car-to-cloud connected system. Through this, Intel intends to introduce a fleet of fully autonomous self-driving cars.

Threat

Foreign Exchange Risks

Intel operates in many parts of the world and is exposed to fluctuations in foreign exchange rates. The company reports financials in the US dollar and its revenue is exposed to the volatility of the US dollar against other functional currencies. A significant part of its revenue is also denominated in other currencies such as euro, the Japanese yen, the Chinese yuan, and the Israeli shekel. The major elements exposed to exchange rate risks include the company's investments in overseas subsidiaries and affiliates and monetary assets and liabilities arising from business transactions in foreign currencies. In FY2017, the company reported a gain of US\$510 million from foreign currency translation adjustments as compared to loss of US\$4 million in FY2016 and US\$170 million in FY2015. To minimize risks from currency fluctuations, the company could resort to foreign exchange hedging by entering into foreign exchange forward contracts. However, there could be no assurance that such hedging or measures would limit the impact of movements in exchange rates on the company's results of operations.

Privacy Risks

Intel's network, products, services and infrastructure are subject to privacy risks. Injection of malicious software or unauthorized access to the company's network may corrupt the processes of hardware and software products that the company manufactures. Due to its data-centric approach, the company's processors are used in many critical applications and are subject to cyber security and privacy risks. The company also faces risks from malicious attackers, who attempt to steal proprietary information from the data centers and the company's customers. Wide usage of its products in millions of devices around the world would make Intel a major target of computer hackers. The company must continuously develop mitigation techniques including software and firmware updates or other preventative measures against security attacks. These mitigation techniques may result in adverse performance, system instability, data loss or corruption, unpredictable system behavior, which could affect Intel's business and harm its reputation.

Intense Competition

The company operates its business in an intense competitive environment. Intel faces significant competition in the development and market acceptance of technologies and products in the computing industry. The company's platforms, based on Intel's architecture, are positioned to compete across a spectrum of internet-connected computing devices, from the lowest-power portable devices to the most

powerful data center servers. The company's products primarily compete based on performance, energy efficiency, integration, innovative design, features, price, quality, reliability, brand recognition and availability. Intel competes with companies that make and sell microprocessors, SoCs, other silicon components, software and platforms to businesses which build and sell computing and communications devices to end-users. Intel's competitors include Advanced Micro Devices, Samsung Electronics, International Business Machines, Oracle, besides ARM architecture licensees such as QUALCOMM, NVIDIA and Texas Instruments, among others. The company's McAfee family of security products and services compete with Symantec. Intel also faces emerging business model competitors from original equipment manufacturers (OEMs) that choose to vertically integrate their own proprietary semiconductor and software assets to some degree, such as Apple and Samsung. Increasing competition could affect Intel's market share in the future.

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