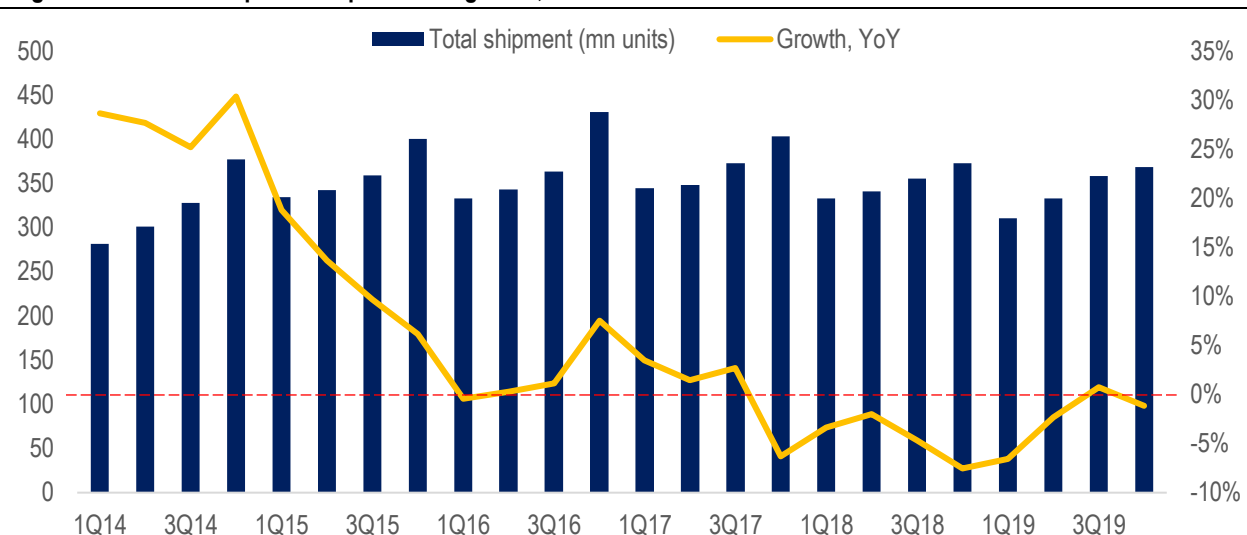




Global smartphone shipment – uncertainties at the early stage of a new cycle

Figure 1: Global smartphone shipment and growth, YoY



Source: IDC, AMTD Research

AMTD views: according to IDC, worldwide smartphone shipment was 368.8mn units in 4Q19, down 1.2% YoY. The overall decline was partly due to weak shipment growth in China last quarter, where consumers may be waiting for cheaper 5G smartphone to hit market. In January this year, Redmi K30 5G, the most affordable 5G smartphone with starting price less than RMB2,000, has been launched for sale. Very competitive prices offered by manufacturers may accelerate penetration of 5G smartphone, and the smartphone sector is without doubt entering a new round of cycle fueled by 5G, in our view. However, overall, the growth of global smartphone shipment still faces challenges ahead this year. Recently unfolding public health situation in China may cause China’s shipment to continue to decline; on the other hand, it may also bring some uncertainties to the global smartphone supply chain.

AMTD Research
Brian Li
 +852 3163-3384
 brian.li@amtdgroup.com

AMTD Research
Michelle Li
 +852 3163-3383
 michelle.li@amtdgroup.com

AMTD Research
Roy Wu
 +852 3163-3242
 roy.wu@amtdgroup.com

Smartphone

Shipment

Apple

According to IDC, in 4Q19, iPhone topped the list by shipping 73.8mn in 4Q19, up 7.9% YoY. iPhone 11 was the top-selling model every week during December and had double-digit sales growth in many developed markets, thanks to the longer battery, upgraded camera system introduced in its new models. Looking forward, Apple is said working on a new 4.7-inch "iPhone SE 2", which is expected to be launched in the first half of 2020. The new launch could help Apple to tap the market segment with more budget-minded buyers. However, Apple is still facing challenges, as it is slower than its major rivals in introducing 5G products.

Samsung

According to IDC, Samsung smartphone shipment declined by 1.3% YoY to 69.4mn units in 4Q19, surpassed by iPhone. It was not unexpected as Samsung normally has strong seasons in second and third quarter. Samsung will unveil new smartphones – Galaxy S20 and Z Flip on 11 Feb. The Galaxy S20, S20+, and S20 Ultra will come in at 6.2", 6.7", and 6.9", respectively, with an upgraded quad-camera and support of 5G. Z Flip will feature 6.7" foldable dynamic AMOLED display. Its clamshell design is like Moto Razr, which was once the best-selling. In addition, more 5G versions in its affordable A series could be another driver for Samsung this year.

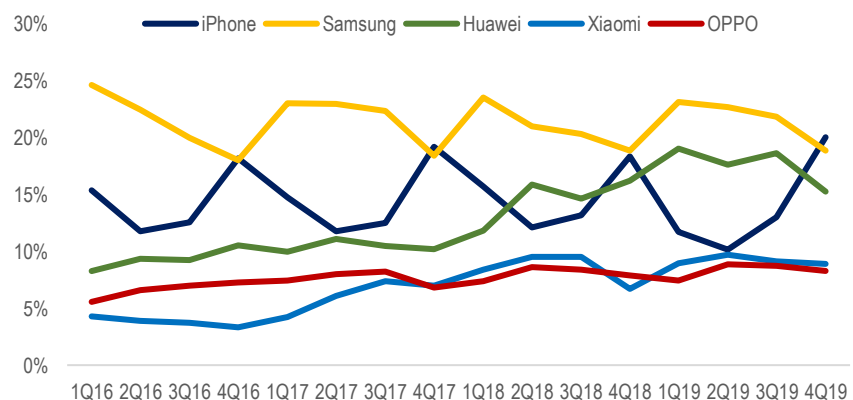
Huawei

According to IDC, Huawei smartphone shipment was 56.2mn units in 4Q19, down 7.1% YoY. The underperformance was mainly due to: 1) US ban – it stopped Google from providing its GMS on Huawei's new product. Huawei launched its flagship model Mate 30 without Google Apps and its sales suffered in the overseas market; 2) competitive pressure from iPhone – the aggressive pricing strategy of new iPhone 11 attracted many users in China. On Double 11 2019, iPhone 11 broke RMB100mn in sales in 1 minute on Tmall and its sales ranked first on JD. The iPhone's popularity has hindered Huawei's entry into the high-end segment.

Xiaomi

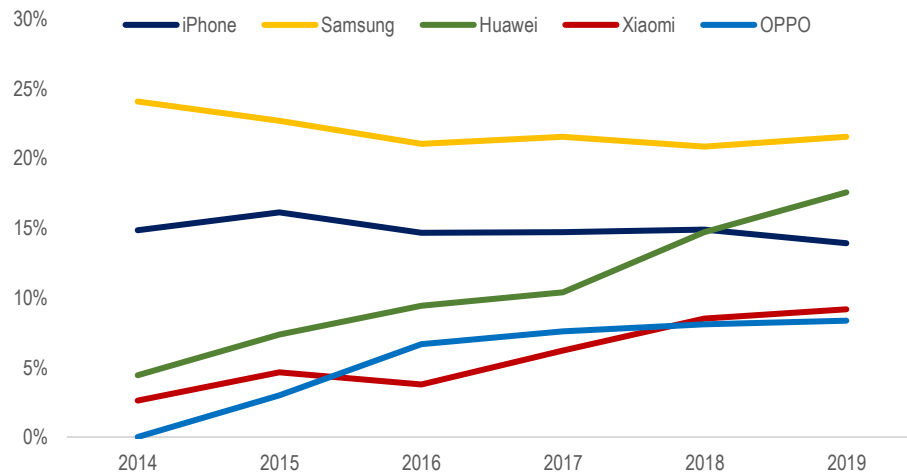
According to IDC, Xiaomi smartphone shipment was 32.8mn units in 4Q19, up 31.1% YoY. In India market, Canalys data showed that Xiaomi continued its leading position with a market share of 29%, followed by Samsung at 21% in 4Q19. In response to intensifying competition, on January 2020, Xiaomi announced that POCO will be an independent brand. We believe the spin-off will further expand Xiaomi's product line and tap the market potential of POCO brand in India market. In the same month, Xiaomi launched Redmi K30 5G for sale in China. It is the most affordable 5G smartphone and will be another catalyst for Xiaomi this year. ([see our latest note on Xiaomi](#))

Figure 2: Market share trends of major smartphone manufacturers by quarter



Source: IDC, AMTD Research

Figure 3: Market share trends of major smartphone manufacturers on a yearly basis



Source: IDC, AMTD Research

Figure 4: Annual smartphone shipments and growth by manufacturer

Company	Growth, YoY					Shipment (mn units)	
	2015	2016	2017	2018	2019	2018	2019A
Apple	20.2%	-7.0%	0.2%	-3.2%	-8.5%	209	191
Samsung	4.2%	-5.2%	2.4%	-7.6%	1.2%	292	295
Huawei	84.0%	31.0%	10.2%	34.8%	16.8%	206	241
Xiaomi	96.3%	-16.7%	64.9%	30.2%	5.5%	119	126
OPPO	n.a.	128.6%	14.2%	1.5%	0.9%	113	114
Total	10.7%	2.3%	-0.1%	-4.5%	-2.3%	1,402	1,371

Source: IDC, AMTD Research

News update

30 Jan 2020

E-commerce/Cloud

IaaS

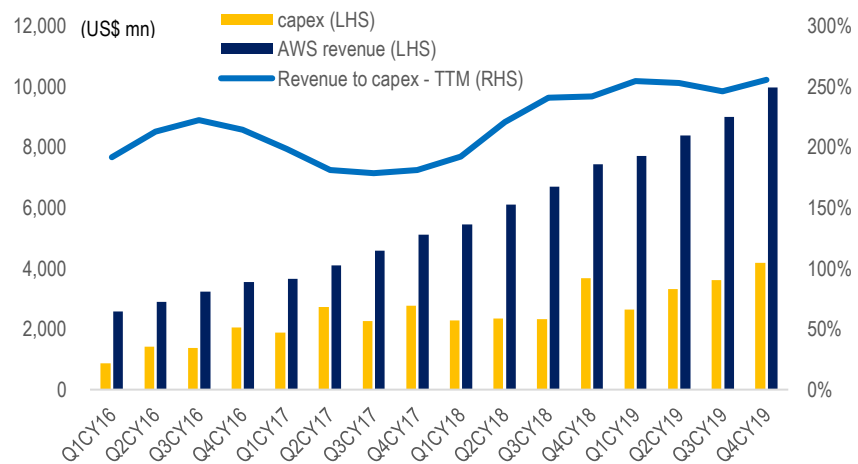
Amazon

Results beat in all aspects – AWS still a strong leader in cloud computing

Amazon reported strong Q4 19 revenue of US\$87.44bn, up 20.8% YoY, ahead of consensus and exceeding the high end of its guidance of US\$86.5bn. North America segment made a strong contribution to the topline growth. The segment revenue grew by 21.6% YoY to US\$53.67bn, thanks to very strong holiday performance from the middle of November on. International segment revenue was US\$23.81bn, up 14.3% YoY. AWS had a strong quarter. Its revenue reached US\$9.95bn, up 35% YoY, and operating margin was improved by 1ppt to 26.1%. Overall, the company operating income was US\$3.88bn, beating the consensus, and GAAP EPS came in far ahead of expectation of US\$4.11 at US\$6.47. For next quarter, net sales was guided to US\$69.0bn-US\$73.0bn, implying an 16%-22% YoY growth, and operating income was expected to be between US\$3.0bn and US\$4.2bn. (Source: [Amazon](#))

AMTD views: we see AWS still in a strong position within cloud competition. AWS sales increased 37% in 2019 with an US\$40bn revenue run rate at the end of 2019. The sales growth primarily reflects increased customer usage, partially offset by pricing changes. Pricing changes were driven largely by AWS's continued efforts to reduce prices for customers. On re:Invent 2019, AWS launched New Graviton2 chips aiming to push price/performance ratio for cloud computing. On capex side, capital lease, which mainly reflects investments in technology infrastructure for AWS, grew 29.3% on trailing 12-month basis to US\$4.2bn in 4Q19. We expect increasing investment will continue to fuel the growth of AWS.

Figure 5: AWS revenue vs capex



Source: Amazon, AMTD Research estimates

29 Jan 2020

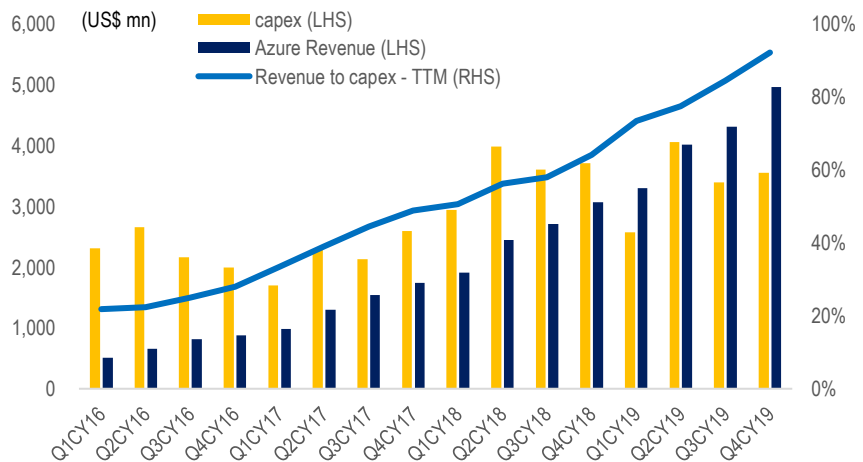
- Cloud
- IaaS/SaaS
- Microsoft

Stronger than expected results – Azure’s leverage effect is in sight

Microsoft reported solid Q2FY20 results. Revenue grew by 13.7% YoY to US\$36.9bn. By segment, Intelligent Cloud revenue reached US\$11.9bn, up 26.6% YoY, driven by Azure and product upgrade cycle (Win 7 & Server 2008). Productivity and Business Processes revenue grew 17.1% YoY to US\$11.8bn, and More Personal Computing revenue came in at US\$13.2bn, up 1.7% YoY. Gross margin was 66.5%, up 5ppt YoY and operating margin expanded to 37.6% a result of higher gross margins and operating leverage. Adjusted EPS came in at US\$1.51, up 37.2% YoY and beating the expectation. For next quarter, management expected Productivity and Business Processes revenue between US\$11.5-11.7bn, Intelligent Cloud revenue between US\$11.85- 12.05bn. Overall COGS and expenses were guided to US\$11.05-11.25bn and US\$11.2-11.3bn, implying a gross margin of 64.6%-67.8% and an operating margin of 34.8%-35.4%, respectively. (Source: [Microsoft](#))

AMTD views: strong quarter with double-digit top and bottom line growth was driven by the commercial cloud. Commercial cloud revenue was US\$12.5bn, up 39% YoY (41% cc). Commercial cloud gross margin rose 5 ppt YoY to 67%, driven again by material improvement in Azure gross margin, which more than offset sales mix shift to Azure. Azure revenue growth accelerated to 62% YoY (64% cc), beating consensus, driven by another quarter of strong growth in consumption-based business across all customer segments. We estimate Azure’s annual revenue run rate is close to US\$20bn. Given its current capex level of US\$3.5bn, excluding finance leases, capex will continue to drive the growth of Azure and operating leverage will help expand the margins, in our view.

Figure 6: Azure revenue vs capex



Source: Microsoft, AMTD Research estimates

28 Jan 2020

Smartphone

Apple

Apple posted record results in F1Q20

In F1Q20, Apple reported all-time records in both revenue and earnings. Total revenue reached US\$91.8bn, up 8.9% YoY. iPhone revenue was US\$56bn, up 7.6% YoY and improved significantly from 9.2% YoY decline in F4Q19. Wearables, Home and Accessories' revenue grew strongly by 37.0% YoY to US\$10.0bn. Services' revenue reached US\$12.7bn, an all-time record growing 16.9% YoY over last year. iPad's and Mac's revenues were US\$6.0bn and US\$7.2bn, down 11.2% and 3.5% YoY, respectively. Gross margin came in at 38.4%, up 40 bps sequentially, thanks to leverage and favorable mix in spite of a negative 60 bps FX impact. Product and services gross margin was 34.2% and 64.4%, respectively, up 260bps and 30 bps from the previous quarter. Net income came in at US\$22.2bn with EPS at US\$4.99, up 11.4% YoY and 19.3% YoY, respectively. For next quarter, total revenue was guided to a wider range of US\$63-67bn by taking coronavirus impact into consideration. Gross margin was expected to be between 38% and 39%. (Source: [Apple](#))

AMTD views: the highlights are: 1) strong iPhone sales: according to IDC, iPhone topped the list by shipping 73.8mn in 4Q19, up 7.9% YoY. iPhone 11 was the top-selling model every week during December and had double-digit sales growth in many developed markets, thanks to the longer battery, upgraded camera system introduced in new models; 2) demand for wearables exceeds supply: Apple experienced product shortages due to very strong customer demand for both Apple Watch and AirPods during last quarter. In particular, Apple Watch is currently penetrating new customer base as 75% of its sales are coming from new customers; 3) robust Services growth: the management highlighted that active installed base of devices has now surpassed 1.5bn, up over 100mn in last 12 months. Apple aims to continue growing its ecosystem. It now has over 418mn paid subscriptions, up 120mn from a year ago and targeted to reach 600mn before the end of CY2020; 4) solid cash position with strong buybacks: net cash went up to US\$99bn at the end of last quarter, in the meanwhile, Apple returned nearly \$25bn to shareholders during the December quarter, including US\$20bn share buybacks and US\$3.5bn dividends.

28 Jan 2020

Semiconductor

AMD

Good Q4 results with solid 2020 outlook

In Q4 2019, AMD came in with total revenue of US\$2.13bn, up 18.1% QoQ/49.9% YoY, beating the market expectation. The beat was mainly due to Computing and Graphics segment with revenue reaching US\$1.66bn, up 30.3% QoQ/68.6% YoY. Newly launched Ryzen processor adoption accelerated sharply in 2019, helping to drive the sales growth. Enterprise, Embedded and Semi-Custom revenue was US\$465mn, down 11.4% QoQ/up 7.4% YoY, missing the consensus. Non-GAAP gross margin was 44.7%, up 1.4ppt QoQ and Non-GAAP EPS came in at US\$0.32, beating the expectation. On the other hand, balance sheet was improved, with highest net cash position since the third quarter of 2006. AMD guided 2020 full year revenue growth of 28-30%, driven by strength across all businesses. The gross margin was guided to the 46% in the Q1 and then 45% for the full year, as lower margin consoles ramp was expected to come back in Q2. (Source: [AMD](#))

AMTD views: the solid 2020 outlook within: 1) PCs: with new products to be launched (Ryzen 4000 for laptop in Q1 20, 7nm Zen 3 in 2H20) within this PC upgrade cycle and impact of capacity shortages at main competitor, we expect solid growth of its CG segment into 2020; 2) Server: as cloud adoption continues to accelerate, the second-gen EPYC processors are ramping significantly faster at major cloud customers; 3) Consoles: semi-custom business is going into the next cycle, the company expected a ramp in Q2. However, risks are still there. Although AMD gained market share in PC/Server in 2019, it still faces intense competition from Intel in 2020.

23 Jan 2020

Semiconductor

Intel

A beat on all estimates and strong guidance for Q1 2020

Intel reported strong 4Q 2019 revenue of US\$20.2bn, up 5.3% QoQ/8.3% YoY, beating the consensus of US\$19.2bn in revenue. Thanks to a 48% surge in cloud demand, Data Center Group was the largest driver of this beat. This sector revenue grew strong by 13.0% QoQ/18.8% YoY to US\$7.2bn. Client Computing Group revenue was US\$10.0bn, up 3.1% QoQ/1.9% YoY. IoT revenue was US\$0.9bn, down 8.5% QoQ/up 12.7% YoY. Non-Volatile Memory Solution revenue was US\$1.2bn, down 5.7% QoQ/up 9.9% YoY. Non-GAAP gross margin was 60.1%, down 0.3ppt QoQ. Propelled by share repurchase (US\$3.5bn in Q4), non-GAAP EPS came in at US\$1.52, up 19.2% YoY and US\$0.27 ahead of consensus. Looking forward to 2020, the company guided full year revenue of US\$73.5bn (+2% YoY), EPS of US\$5.00 (+3% YoY), and capex of US\$17bn. In particular, revenue was guided to grow 18% YoY to US\$19bn (Data-centric +25% YoY) and EPS was guided to US\$1.30, up 46% YoY, in Q1 2020. (Source: [Intel](#))

AMTD views: in the near term, Windows 10 refresh upgrade cycle will drive the sales growth, as we can see the upbeat Q1 guidance offered by the company. In the long run, cloud computing and AI are the growth theme as the company is investing to lead with a strong portfolio of products in AI. On the other hand, we still see headwinds in 2020 due to the challenging PC market and competitive pressure from AMD; in the meanwhile, quick moving from 14nm to 10nm to 7nm would put pressure on gross margin as well.

16 Jan 2020

Semiconductor

TSMC

Q4 results beat with a robust 2020 outlook

TSMC reported solid Q4 results. Revenue reached NT\$317bn, up 8.3% QoQ/9.5% YoY and ahead of company's guidance in Q3. It was mainly driven by high-end smartphones and HPC-related applications using 7-nanometer technology. Gross margin and operating margin rose 2.6 ppt and 2.4 ppt sequentially to 50.2% and 39.2%, respectively, above the market expectation, thanks to a much better utilization more than offset by an unfavorable FX headwind. Net profit of NT\$116bn came in ahead of consensus. Despite mobile product seasonality, management guided solid Q1 2020 revenue of US\$10.2-10.3bn, implying only 1% QoQ decline at midpoint. Gross margin/operating margin was guided at 48.5-50.5%/37.5-39.5%. (Source: [TSMC](#))

AMTD views: The company's 2020 capital budget of between US\$15bn-US\$16bn, which implied a mid-single-digit capacity increase, was to fulfil strong demand from customers. In terms of platform, the company expected smartphone and HPC would grow above 20% YoY, and IoT and automotive would grow at mid-teens. In terms of technology node, 7nm revenue contributed 27% of total revenue in 2019 and the company expected 5nm to contribute about 10% of its wafer revenue in 2020. However, there would be margin dilution impact in the second half of this year from the 5nm ramp. In addition, Geopolitical is still a concern. The number the company currently forecast did not include de minimis rule tightened and change.

29 Jan 2020

Semiconductor

Samsung

Samsung to use EUV for DRAM production in 2020

Samsung Electronics is expected to apply EUV exposure equipment to next-gen 10nm (1z) DRAMs or 1a DRAMs production lines for the first time around the end of 2020 or early 2021. The 1z DRAM, the first in the industry, was announced in March 2019, and its mass production was originally set to start in 2H19. Samsung is testing the EUV exposure equipment for production of 1y and 1x DRAMs. The company aims to streamline its chipmaking process and reinforce competitiveness against SK Hynix and Micron Technology. (Source: [BusinessKorea](#))

24 Jan 2020

5G/Infrastructure

China's 5G commercial service starts well

China's 5G commercial service has seen a good start. China had built over 130,000 5G base stations by the end of 2019, and shipment of 5G smartphones reached 13.77 million, according to the MIIT. Apart from 20% in interpersonal communication, the majority (80%) of 5G applications are in IoT areas, such as Internet of Vehicles and industrial Internet. China will continue to push for investment in 5G network construction, especially the development of SA architecture, to maximize 5G performance. (Source: [Xinhuanet](#))

23 Jan 2020

Panel

BOE

BOE's flexible AMOLED shipments expected to increase significantly in 2020

BOE said that the company's flexible AMOLED production line is operating well, and with the overall release of the flexible AMOLED production capacity, it will gradually introduce more brand customers. The flexible AMOLED customer structure will be more abundant, and the company's flexible AMOLED shipment target in 2020 is expected to increase significantly. BOE shipped approximately 18 million AMOLED smart machine panels in 2019, an increase of 343.9%yoy with a market share of 4.0%, which increased 3% YoY. (Source: [Sina](#))

22 Jan 2020

Module

Apple

Apple definitely hasn't given up on under-screen fingerprint sensors

A new Apple patent details how a device with an OLED screen can provide touch ID-like functionality at any point on the display's active area. Apple Corp. said in US Patent No. 10,541,280 that this organic light emitting diode (OLED) display can perform optical touch sensing and user identification. Using under-screen fingerprints also helps Apple achieve true full-screen technology on the iPhone. (Source: [Mydrivers](#))

22 Jan 2020

Semiconductor

AMD/Intel

AMD Ryzen-powered laptops accounted for 24.3% of total shipments in Japan

According to BCN, laptops powered by AMD's Ryzen accounted for 24.3% of total shipment in Japan as of 23 Dec 2019, while Intel still dominated the laptop CPU market with a share of 75.4%. Back in Jan 2019, Ryzen-powered laptops only took up 1.2% of Japan market. In terms of average selling price, Intel-powered laptops had an average price of JPY125,000, while AMD-powered laptops' average price was JPY108,000. AMD's surge is due to Intel's shortage in 2019 as well as Ryzen's improving cost performance. (Source: [Smalltechnews](#))

21 Jan 2020

Devices

Gartner predicts global device shipments to grow by 0.9% in 2020

Gartner, the world's leading information technology research and consulting company, predicts that global shipments of devices (personal computers, tablets and mobile phones) will reach 2.16 billion units in 2020. Shipments in 2019 were 2.15 billion units, an increase of 0.9%yoy. The global mobile phone market is expected to grow by 1.7% in 2020. Smartphone shipments were weak in 2019, decreased 2%yoy. However, smart phone shipments are expected to grow in 2020, especially in Greater China and Asia Pacific emerging markets. (Source: [Gartner](#))

21 Jan 2020

Semiconductor

Intel

Intel's next-gen DG2: 7nm node by TSMC, not Intel's in-house 7nm

Intel DG2 discrete graphics card is currently under development. Considering cost and capacity, it is expected that TSMC's 7nm process foundry will be used instead of the second generation 7nm + EUV process. According to industry sources, Intel DG2 discrete graphics will be officially released in 2022. It is worth noting that Intel DG2 discrete graphics may not use Intel's own 7nm process, but use TSMC's 7nm process. Among them, DG1 should be an entry-level graphics card with low power consumption, and DG2 is a relatively high-performance gaming graphics card. The DG2 GPU is rumored to have up to 3 models, each with 128, 256, and 512 EU units. (Source: [Techweb](#))

20 Jan 2020

Semiconductor

Qualcomm

Qualcomm launched 3 new Snapdragon mobile platforms for 4G smartphones

Qualcomm launched three new 4G mobile platforms to meet the ongoing demands for 4G smartphones: Snapdragon 720G, 662 and 460. The platforms deliver key Wi-Fi 6 features and integrated Bluetooth 5.1, and are the first system-on-chip solutions to support Navigation with Indian Constellation (NavIC). They also feature the Qualcomm AI Engine and Qualcomm Sensing Hub to deliver new and improved AI user experiences across photography, voice assistants, etc. 1) Snapdragon 720G is based on 8nm process, and could provide extraordinary gaming and entertainment experiences with Qualcomm Snapdragon Elite Gaming. 2) Snapdragon 662 supports triple camera configurations and smooth switching between them—a first in the 6-series. 3) Snapdragon 460 features performance CPU cores and an updated GPU architecture that translates into up to 70% and 60% increase in performance, respectively. (Source: [Qualcomm](#))

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We, Brian Li, Michelle Li and Roy Wu, hereby certify that (i) all of the views expressed in this research report reflect accurately our personal views about the subject companies and their securities; and (ii) no part of our compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed by us in this research report, nor is it tied to any specific investment banking transactions performed by AMTD Global Markets Limited.

As of the date the report is published, Brian Li holds financial interest in the securities of Amazon mentioned in the report.

AMTD Global Markets Limited

Address: 23/F - 25/F, Nexxus Building, 41 Connaught Road Central, Hong Kong

Tel: (852) 3163-3288 **Fax:** (852) 3163-3289

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