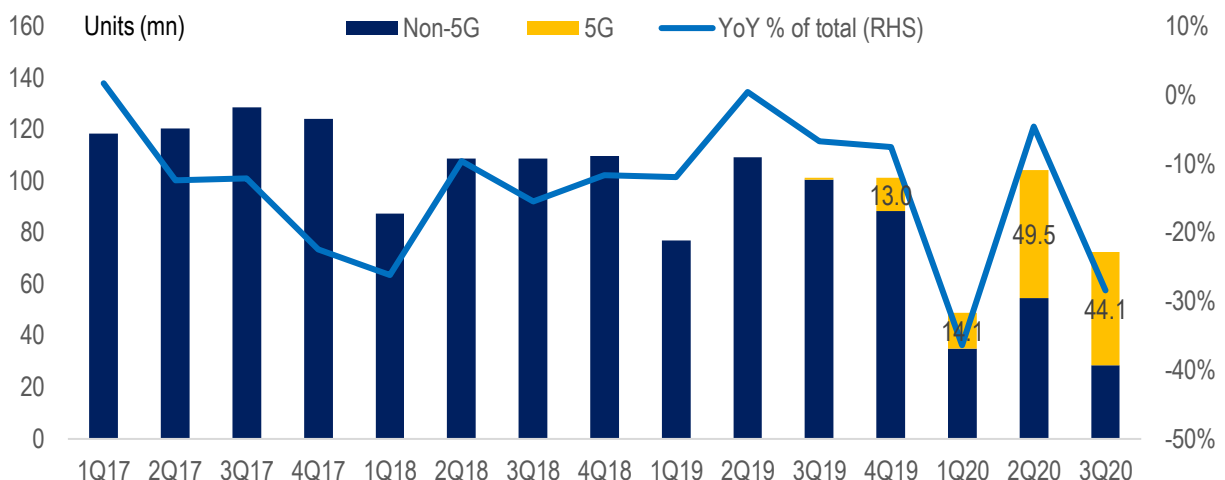




China smartphone shipment – ahead of a new upgrade cycle

Figure 1: China smartphone shipment and YoY growth



Source: CAICT, AMTD Research

AMTD views: According to the monthly data of CAICT, we estimated that about 72.5mn units of smartphone were shipped in mainland China in 3Q this year, down 28.4% YoY/30.3% QoQ. After a brief rebound in 2Q, the overall smartphone market returned to a downturn again. The weak shipment was mainly due to: 1) the launch of new iPhone 12, the first 5G handset of Apple, postponed to 4Q; 2) Huawei’s shipment decline caused by the new U.S. ban 915 on its supply chain; in our view. As a few of hot models will be launched in 4Q, including new iPhone 12, Huawei’s Mate 40, and OPPO’s new flagship equipped with the new hybrid optical zoom, we believe the weakness was short-lived and the shipment could recover in 4Q. On the 5G side, the total shipment in mainland China was 44.1mn units in 3Q, down 11.0% QoQ, but the 5G penetration had increased to 60.7% in 3Q from 47.6% last quarter, indicating that 5G has begun to dominate the smartphone market in China. In the long run, we expect breakthrough 5G applications such as AR/VR will boost a material wave of smartphone upgrades.

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Smartphone

Apple

New iPhone 12 series – will continue its leading edge in ecosystem

The belated iPhone 12 was finally launched on 16 Oct, which marked the iPhone's entry into 5G era. In addition to supporting 5G high-speed connectivity, including mmWave, another important release was that the new iPhone 12 Pro/Max are equipped with the updated version of LiDAR scanner, which was firstly introduced in iPad Pro 2020.

LiDAR scanner – breaking a new ground for AR/VR applications

There are two mainstream 3D solutions in smartphone industry: iToF (indirect ToF) and dToF (direct ToF). The former is widely used in Android camp while the latter is adopted by Apple. Compared to iToF, dToF signal is less affected by noise, and suitable for long-distance ranging given its more stable measurement accuracy. However, because of the difficulty of miniaturization and high cost, dToF is still mainly used in autonomous driving and drones, where require higher accuracy. After several years' heavy research and investment in this field, Apple firstly introduced dToF (LiDAR scanner) into the consumer electronics field this year. On the software side, Apple has also invested and developed AR/VR since 2016. Now apps that support ARKit will automatically get the functions supported by LiDAR. Today, with the full support of both hardware and software, Apple breaks a new ground for AR/VR applications in 5G era and will continue its leading edge in its smartphone ecosystem.

Figure 2: LiDAR Scanner of iPhone 12 Pro/Pro Max



Source: Company website, AMTD Research

Pricing – adopting moderate pricing strategy

Apple announced four versions of the new iPhone 12 this year, compared to 3 versions of iPhone 11 in 2019 and 3 versions of iPhone X in 2018. The starting price of entry level – iPhone 12 mini/iPhone 12 were US\$729/US\$829, a bit higher than US\$699 of iPhone 11 and close to US\$749 of iPhone X, but the starting prices of iPhone 12 Pro/Max were at US\$999/US\$1,099, the same as the prior iPhone 11 Pro/Max and iPhone XR/XS Max.

In contrast to Android camp raising prices in recent years, Apple has gradually shifted away from premium pricing strategy to moderate pricing strategy, which is to introduce entry level models with lower price and keep high-end models' price stable, to expand customer base. For example, almost launched at the same time of iPhone 12, Huawei's Mate 40/40 Pro/40 Pro+, major rivals of iPhone 12, were priced at €899/€1,199/€1,399, more than 40% higher than that of iPhone 12.

On the other hand, according to the press, the pre-order for iPhone 12 was very strong. In China, it hit 1.6mn units just 2 days after the launch. Given the catalysts of 5G upgrade, moderate price, and US ban on its major rival, we expect iPhone shipment will reach 78mn units in 4QCY20, with a full year shipment of more than 190mn units in 2020..

Figure 3: Key specs comparison between iPhone 12 series and Huawei Mate 40 series

	iPhone 12 Pro	Huawei Mate 40 Pro
Display	6.1-inch Super Retina XDR OLED 2532×1170-pixel resolution at 460 PPI	6.76-inch Flex OLED, FHD+2772 x 1344-pixel
Processor	A14 Bionic with X55 modem (5nm) 6-Core with 11.8 bn transistors	HiSilicon Kirin 9000 5G SoC (5nm) 8- Core with 15 bn transistors
5G connectivity	mmWave (in US)/Sub-6GHz 12 MP TrueDepth (f/2.2) support 4K/HDR at 60fps	Sub-6GHz 13MP Ultra Vision Selfie Camera (f/2.4) support 4K at 240fps
Camera - front		
Camera - back	12MP wide (f/1.6) 12MP ultra-wide (f/2.4, 120°) 12MP 4x optical telephoto (f/2.0) LiDAR Scanner	50MP RYYB main camera (f/1.9) 20MP ultra-wide (f/1.8) 12MP 3x optical telephoto (f/3.4)
Operating system	iOS 14	EMUI 11.0 (Based on Android 10)
Starting price	iPhone 12 Pro: US\$999 in Oct 2020 iPhone 11 Pro: US\$999 in Sep 2019	Mate 40 Pro: € 1,199 in Oct 2020 Mate 30 Pro: €1,099 in Sep 2019
	iPhone 12 Pro Max	Huawei Mate 40 Pro+
Display	6.7-inch Super Retina XDR OLED 2778×1284-pixel resolution at 458 PPI	6.76-inch Flex OLED, FHD+2772 x 1344-pixel
Processor	A14 Bionic with X55 modem (5nm) 6-Core with 11.8 bn transistors	HiSilicon Kirin 9000 5G SoC (5nm) 8- Core with 15 bn transistors
5G connectivity	mmWave (in US)/Sub-6GHz 12 MP TrueDepth (f/2.2) support 4K/HDR at 60fps	Sub-6GHz 13MP Ultra Vision Selfie Camera (f/2.4) support 4K at 240fps
Camera - front		
Camera - back	12MP wide (f/1.6) 12MP ultra-wide (f/2.4, 120°) 12MP 5x optical telephoto (f/2.2) LiDAR Scanner	50MP RYYB main camera (f/1.9) 20MP ultra-wide (f/2.4) 12MP 3x optical telephoto (f/2.4) 8MP 10x optical (f/4.4) 3D depth sensing
Operating system	iOS 14	EMUI 11.0 (Based on Android 10)
Starting price	iPhone 12 Pro Max: US\$1,099 in Oct 2020 iPhone 11 Pro Max: US\$1,099 in Sep 2019	Mate 40 Pro+ € 1,399 in Oct 2020 Mate 30 Pro 5G: €1,199 in Sep 2019

Source: Company website, AMTD Research

News update

16 Oct 2020

Semiconductor

TSMC

Strong Q3 with earnings beat and upbeat outlook of Q4

TSMC reported solid Q3 results. Revenue reached NT\$356.43bn (US\$12.14bn), up 14.7 QoQ/ 21.6% YoY, ahead of the upper end of its guidance in Q2. Thanks to much higher utilization, its gross margin increased 0.4ppts sequentially to 53.4% in Q3, partially offset by margin dilution from 5nm and unfavorable FX. Given a higher level of R&D in N4 and N3 technologies, operating margin slightly decline by 0.1 ppts to 42.1%. Net profit came in at NT\$137.31bn with an EPS of NT\$5.3, beating consensus by 5%. For the next quarter, the revenue was guided to US\$12.4bn to US\$12.7bn, implying a 3.4% QoQ growth and with 52.5%/41.5% gross margin/op margin at the mid-point. The growth will be driven by 5nm for 5G smartphone and HPC-related applications. (Source: [TSMC](#))

AMTD views: Despite the fact that HiSilicon's orders were cancelled due to US ban, the company's N5 capacity has been filled by Apple's new A14 chips for its new iPhone 12 and iPad Air. N5 contributed 8% of wafer revenue in Q3 and the management reaffirmed the 8% contribution target for the full year of 2020 and expected N5 to contribute about 20% of wafer revenue in 2021 as fabless customers, including Qualcomm, Broadcom, MediaTek, etc, will kick off N5 wafer starts in 2021. On the other hand, both N4 and N3 risk production is targeted for 2021, and volume production is targeted for 2022. The company expected full year 2020 capex to be about US\$17bn.

23 Oct 2020

Semiconductor

Intel

Q3 results in line but challenges rising ahead

Intel reported Q3 revenue/non-GAAP EPS of US\$18.3bn/US\$1.11, down 4.5% YoY/21.7% YoY, in line with its guidance in Q2. Gross margin in Q3 was 54.8%, 2 ppts below the company's expectation, due to lower data center ASPs driven by mix shift from enterprise and government to cloud and lower PC client ASPs on increased demand for consumer and education PCs. In terms of segment, CCG's revenue came in at US\$9.8bn, up 1.4% YoY, while DCG's revenue was down 7.5% YoY to US\$5.9bn. For the full year 2020, revenue was expected to be US\$75.3bn with gross margin to be 57%, down 1ppts from prior guidance, mainly due to 10nm acceleration and a change in mix of products. Non-GAAP EPS was expected to be US\$4.90. (Source: [Intel](#))

AMTD views: Although Intel managed to deliver results in line with the expectation, challenges are rising ahead: 1) Intel is losing market share to AMD, which has already launched 7nm server chips and is expected to launch 5nm chips in 2020, while Intel is still trying to improve its 10nm yield and has no update on 7nm process, as its Data-centric revenue was guided to down 25% YoY in Q4; 2) there is still no clear decision on whether to go fabless or go partly fabless; 3) SK Hynix deal will hit revenue in Q1'21 and the earliest benefit from depreciation will not be seen until late Q1'21 or Q2'21.

27 Oct 2020

Semiconductor

Apple/TSMC

Apple A15 Bionic SoC to use TSMC's NP5 manufacturing process

The next-generation Apple A15 Bionic chipset is reported to power the iPhone 13 models. The A15 Bionic will be manufactured using the N5P node by TSMC. The mass-production could start in the third quarter of 2021. (Source: [Gizmochina](#))

26 Oct 2020

Smartphone

Huawei

Huawei Honor V40 to be released in Nov powered by Kirin 9000 processor

Honor V40 is reported to be equipped with Kirin 9000E, while Honor V40 Pro will be equipped with Kirin 9000 processor. In terms of design, Honor V40 adopts a front dual camera digging hole and a curved screen; in terms of camera, it will still have the same Sony IMX 700 main camera of the Huawei Mate 40 series. Besides, this model is equipped with 66W quick charging and 50W wireless charging. The Honor V40 series mobile phones are expected to be officially released in November. (Source: [Elecfans](#))

26 Oct 2020

Semiconductor

TSMC

TSMC to enter mass production of 6th generation CoWoS packaging in 2023

TSMC is reported to start production of its 6th generation Chip-on-Wafer-on-Substrate (CoWoS) packaging technology. The new generation is said to enable a massive 12 stacks of HBM memory on a package. TSMC's 6th generation CoWoS packaging technology, is expected to be put into mass production in 2023. (Source: [Techpowerup](#))

26 Oct 2020

Cloud

SAP

SAP went all in on cloud, scraps mid-term margin goals

SAP stated it was going all in on its shift to cloud computing as it abandoned medium-term profitability targets and cautioned that its business would take longer than expected to recover from the coronavirus pandemic. This decision was due to the fear that lockdown restrictions would affect demand for its business relations and customer management software into 2021. (Source: [Reuters](#))

23 Oct 2020

Smartphone

Huawei

Huawei achieved total revenue of RMB671.3bn in Q3 2020, up 9.9% YoY

Huawei announced its business results for Q3 2020. During this period, Huawei generated RMB671.3 billion in revenue, an increase of 9.9% YoY. Net profit margin in this period was 8.0%. Throughout the first three quarters of 2020, Huawei's business results basically met expectations. (Source: [Huawei](#))

22 Oct 2020

Smart TV

Xiaomi

Xiaomi estimated to ship more than 14 million Smart TVs this year

Xiaomi has been tightening its grip in the Smart TV market and is now expected to ship over 14 million units of its Smart TV this year. While the company had set a target of shipping 16 million units of Smart TVs this year, it has been affected by the COVID-19 pandemic. (Source: [Gizmochina](#))

20 Oct 2020

Smartphone

Xiaomi/Samsung

Xiaomi foldable smartphone is similar to Samsung Galaxy Fold

Xiaomi lays down a design for a phone that appears to be identical to Samsung's first foldable smartphone, the Galaxy Fold, on the front and back. According to the new patent released, it is an inwardly foldable phone with a cover screen. The front of the device appears to be identical to that of the Galaxy Fold. The screen covers about 4.6 inches, with large screen edges visible especially at the top and bottom. A triple camera is implemented on the back, which is also very similar to the Fold. Even the positioning of the vertical camera system is the same. (Source: [IThome](#))

20 Oct 2020

Semiconductor

Intel/SK Hynix

SK hynix to buy Intel's NAND memory business for US\$9bn

SK hynix announced that SK hynix would acquire Intel's NAND memory and storage business for US \$9 billion. With this acquisition, SK Hynix will rank No. 2 spot in the global NAND market. The transaction includes the NAND SSD business, the NAND component and wafer business, and the Dalian NAND memory manufacturing facility in China. Intel will retain its distinct Intel® Optane™ business. (Source: [SK hynix](#))

19 Oct 2020

Livestream

Apple

Apple launched "Apple Music TV", a free 24-hour music video livestream

Apple announced that the "Apple Music TV", a free 24-hour curated livestream of popular music videos that will also include exclusive new music videos and premiers, special curated music video blocks, and live shows and events as well as chart countdowns and guests. It is available to U.S. residents only on the Apple Music app and the Apple TV app. (Source: [Variety](#))

18 Oct 2020

5G

China's 5G network had over 600,000 base stations

As of October 2020, China is stepping up the construction of its 5G network, and has now built over 600,000 5G base stations, which continues to grow at an average rate of over 10,000 per week. With the rapid increase in 5G users, the number of connected devices on the network has exceeded 150 million. China has become the world's largest 5G market. (Source: [Xinhua](#))

14 Oct 2020

Semiconductor

MediaTek

MediaTek launched i350, a highly integrated Edge AI platform

MediaTek announced the i350, a highly integrated Edge AI platform with a dedicated APU (AI processor) and digital signal processor (DSP) for AIoT products that require vision and voice edge processing. The i350 brings powerful Edge AI processing to applications with capabilities such as facial, object, gesture and motion recognition, license plate recognition (LPR), voice activation and speech recognition, sound isolation and biotech and biometric measurements. (Source: [MediaTek](#))

14 Oct 2020

Smartphone

Vivo

Vivo completed field test of 5G millimeter wave mobile phone

Vivo and ZTE, based on the Vivo 5G millimeter wave mobile phone, measured the downlink 4CC 2.06 Gbps peak rate, extending the test distance to 1.3km (Limited by the on-site LOS distance limit). According to the test requirements of the IMT2020 (5G) promotion group, all field test are completed. Vivo's 5G millimeter wave mobile phone is equipped with a Qualcomm Snapdragon X55 5G modem and a QTM millimeter wave module. (Source: [Chinanews](#))

14 Oct 2020

Semiconductor

NVIDIA/TSMC

NVIDIA to shift over to TSMC for new 7nm Ampere GPUs in 2021

NVIDIA is currently making its Ampere GPUs on Samsung's new 8nm node, but the company is reported to shift over most production to TSMC 7nm, which should see the new GeForce RTX 3080 20GB model, and mid-range GeForce RTX 3060 and other series cards that are expected towards the tail end of 2020 and more so into 2021. (Source: [Tweaktown](#))

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