

Manufacturing Market TM

INSIDER

inside the contract manufacturing industry

Vol. 29, No. 10

October 2019

US Trade War Is Stimulating Production Growth in China

The US trade war was originally intended to be a stimulant for domestic production that was to be won by its benefits in new manufacturing jobs, but nearly one year after its implementation, this appears not to be the case. And based on some recent strategic market information obtained by New Venture Research (NVR), the parent of *MMI*, the electronics manufacturing industry in China is not only thriving, but it is growing rapidly, and it appears that it is going to make China great all over again.

For the last 30 years, China has had to import all of its electronics manufacturing equipment (that is, surface-mount technology, or SMT), which is good for the leading suppliers like **ASM, Fuji, Hanwha, Juki, K&S, Micronic, Panasonic, Universal, and Yamaha** (there are virtually no domestic Chinese SMT companies of any size). Because of this, all imports of SMT hardware are reported and known, often in astounding detail. NVR has been able to track this information in order to help it predict the trends in market growth in China, as well as plot the expansion of the manufacturing base by SMT suppliers and OEM, EMS, and ODM customers throughout the country. The results are quite enlightening, to say the least.

Subscribers to *MMI* were made aware in past issues of *Flex*'s problems with its leading customer **Huawei**, whose blacklisting earlier this year by the US government was for allegedly violating sanctions on Iran, which

strictly limits its engagement with American companies. This triggered a massive layoff of at least 10,000 workers in *Flex*'s Zhuhai factory that is made up of two units consisting of a southern and a northern block, with the former entirely focusing on assembly business for Huawei smart phones. While the southern block has now gone idle, the entire factory can employ up to 18,000 people and is one of the company's largest facilities in China. *Flex* had previously said it would reduce its business with Huawei due to "significant geopolitical uncertainty," after the Chinese telecom giant was placed on a US government blacklist.

China is one of the most important markets for *Flex*, which generates about 25% of its total revenue from the country. Huawei is one of its key customers, making up 5% of *Flex*'s total revenue, or approximately US\$100 million, according to estimates by investment bank Goldman Sachs.

Since 2018, virtually all of *Flex*'s new imports for manufacturing equipment have vanished, and picking up the slack are companies like **BYD Electronics** (with locations in Changsha, Shenzhen, Huizhou, Wuhan, etc.), which was established on June 11 of this year as the second-stage supplier of *Flex*'s projects. BYD was seen to be expanding its manufacturing base in preparation for this role since the beginning of 2019. BYD is not the only EMS/ODM supplier on a buying spree, according to NVR field research, and the situation has resulted in leading OEMs like Huawei investing dramatically to increase manufacturing capacity over the last three years. Other very actively investing EMS/OEMs include **Pegatron, Compal, TPV, and ZTE**, to name just a few. We even find that second-tier suppliers like **TSMT** and **Wong's** have been significantly investing in expansion of their domestic manufacturing assets over the last year.

There is insufficient space here to explain **Foxconn's** unrelenting expansion of its manufacturing base; it may have as many as 3,000 SMT lines installed throughout China. The company recently announced that it planned to invest \$9 billion in a new display

Some articles in this issue

Cover Story.....	1
US Trade War Is Stimulating Production Growth in China	
Some Quarterly Results.....	3
Samsung Ends Smart Phone Manufacturing in China.....	5
Quanta Supplying Apple with Unspecified Autonomous Driving Solutions...6	
Apple Starts Production of iPhone XR in India.....	7

plant that began operations in July 2019, the largest ever single investment in Guangzhou (*MMI*, August 2019). So much for the \$10 billion investment for a display factory planned for Wisconsin (*MMI*, May 2019; see related article p. 7). Besides, in the last several years Foxconn has dramatically increased its manufacturing capacity in China for domestic and export production. Expansion has been driven by substantial subsidies provided by Beijing (see *MMI*, May 2019). This practice is followed throughout the EMS industry by domestic OEMs and ODMs.

Blacklisting Chinese electronics manufacturers and implementing across-the-board 25% tariffs has had a stimulating effect on the electronics manufacturing industry in China. This can be seen in the growth of the equipment imports now happening all over China. While some of this demand is clearly going into replacement of aging equipment, the majority of it seems to be being funneled into the economic development zones that are used by EMS/ODM firms that create so much export production today.

EMS and ODM companies appear to be the primary recipients of this growth in production capacity, yet there is also a healthy proportion of OEM firms such as **China Electronics Co. (CEC)**, **Panda Electronics**, **Great Wall Technology**, **LM Ericsson**, **Hangzhou Hikvision**, **Nanjing LG**, **China Aerospace**, **AVIC International**, **Luxshare Precision**, **Henkel AG**, **Amphenol**, **Shanghai Automotive**, **Fuji Optical**, **Robert Bosch**, and many others.

The US electronics manufacturing sector is currently experiencing only moderate growth of 3–5 percent, whereas China's electronics manufacturing sector, at last check by *MMI*, is at least at 5–8 percent growth. Moreover, China is quietly and aggressively expanding its manufacturing infrastructure, as discovered in the latest field research.

Most of the new electronics manufacturing production that is to be captured by Western EMS companies

today in China consists of mature or niche products or high-complexity/low-volume assemblies. For example, **Sanmina** has an FDA-registered facility in Kunshan, outside of Shanghai, that makes complex electromechanical assemblies for medical devices. It has another plant in Shenzhen that meets the ISO 13485 standard, but it doesn't presently ship products to the US.

Jabil makes parts for iPhones and other electronics at its Chinese factories. While China accounts for about 20 percent of Jabil's total revenue, a significant percentage of its China revenue is for final consumption in geographies other than the United States. Therefore, Jabil is not seeing a lot of customers moving existing production, according to press releases and as expressed by CEO Mark Mondello.

There aren't a lot of high-volume products being manufactured by Western EMS companies in China these days. Most of the remaining first-tier EMS companies like **Benchmark**, **Celestica**, and **Plexus** have fine-tuned their China product offerings to serve the needs of their largest OEM customers, who seem to require low-cost operations in the Eastern Hemisphere for distribution. The remaining top-tier EMS suppliers, like **IMI**, **Kaifa**, **Pegatron**, **TPV**, **UMC**, and **Wistron**, all have extensive manufacturing operations in China that serve local customers, or at least do not make products that are bound for the US.

EMS in China is the largest manufacturing force in the CM market. China's growth is slowing from previous years as costs rise and other regions become more competitive, yet in comparison no other region can match its supply chain, workforce, or experience in computer, communications, and consumer electronics products. The emergence of ODM suppliers into the contract manufacturing business is expanding in China as most OEMs choose to separate their EMS operations into independent entities to avoid the perceived conflict of

competitive interest.

According to New Venture Research, in 2016 there were 212 production facilities located in China offering approximately 182 million square feet of manufacturing space. It is noteworthy that this count was reduced to 204 locations in 2018 and approximately 173 million square feet, probably a result of consolidation. The following is a summary of the opening and closing of operations in China for 2018.

Celestica added new facilities in Suzhou and Xiamen, but closed a location in Wuxi, which reflects some reorganization in its operations. **Elite Computer Systems** expanded in Shenzhen, and **Gemtek** did so in Kunshan. **GPV** added a new operation in Zhongshan, **HANZA** added a facility in Suzhou, and **Inventec** expanded in Nanchang and X'ian. **Melecs** added capacity in Wuxi, **Norautron** added capacity in Suzhou, as did **Sercomm**, while **Shenzhen Zowee** added two plants in Tianjin. **SMTC** added an operation in Chang'an. **TQSystems** has established an operation in Shanghai and, lastly, **UMC** expanded into Dongguan.

The clear majority of CM production is for export, although there is increasing demand for mobile phone and computing products domestically, mainly provided by local ODMs. This huge export market compared to the domestic market results in a negative TAM, as exports far exceed all domestic production demand.

The market reality behind this trend is clear: China will continue to be the dominant and majority supplier of electronics manufacturing products for the foreseeable future. As for new and emerging products, many US-based companies like **Amazon**, **Google**, **Microsoft**, **Cisco**, **HPE**, **Dell**, **IBM**, and **Oracle** will lead the field with the most complex and innovative assemblies that exploit market niches. A large part of the innovation will also be captured by second- and third-tier EMS suppliers in niche areas of the automotive, aerospace, networking, data center/cloud, industrial, and medical markets within domestic geographic regions.

Some Quarterly Results

TT Electronics reported interim results for the half-year 2019 wherein revenue grew by 20 percent at constant currency to £238.2 million (1H2018: £194.2 million), up 8 percent organically. Foreign exchange had a £4.5 million positive impact. The incremental contribution from acquisitions in the first half was £23.6 million. Growth was driven by Power and Connectivity and Global Manufacturing Solutions from increased penetration of existing customers and a number of new customer wins. The aerospace and defense and medical markets, which now represent 45 percent of the Group, grew by 37 percent (27 percent organically).

Underlying operating profit increased by 27 percent at constant currency to £19.2 million (1H2018: £14.6 million), with the improvement driven largely by operational leverage and better efficiency. Underlying operating profit from acquisitions was £1.6 million. The underlying operating profit margin was 8.1 percent, up 60 basis points as reported and 50 basis points at constant currency (1H2018: 7.5 percent). Underlying earnings per share increased 28 percent to 8.8 pence, or by 22 percent on a constant currency basis.

During the period the company invested £7.1 million in R&D, representing 5.4 percent of revenue from its Power and Connectivity and Sensors and Specialist Components divisions (1H2018: £5.7 million). It launched a brand-new power solution, a prototype power conversion unit, at the Paris Air Show, following the investment started last year for power solutions for aerospace and defense applications in its advanced technology center.

The company continues to take self-help actions to improve delivery to customers and drive margin enhancement. The investments made in 2018 have resulted in significant improvements in performance in its facilities in south Wales and Devon in the UK, and TT has won new customers after making operational improvements.

Revenue by Segment Sensors and Specialist Components (27% of Group revenue): Revenue in the first half was £64.1 million (1H2018: £62.4 million), up 3 percent and down 2 percent organically. Following very strong performance over the last two years with component shortages contributing to strong revenue growth, softer market conditions and inventory de-stocking in the first half have impacted demand.

Power and Connectivity (28% of Group revenue): Revenue for the first half grew to £67.6 million (1H2018: £47.6 million), an increase of 40 percent at constant currency and 4 percent organically. It saw good growth in aerospace and defense, which now accounts for 41 percent of revenues in the division. Acquisitions contributed £17.3 million of revenue.

Global Manufacturing Solutions (45% of Group revenue): Revenue for the first half was £106.5 million (1H2018: £84.2 million), up 25 percent at constant currency, and up 17 percent organically. The incremental revenue from acquisitions was £6.3 million. Organically, revenue growth was driven by new and existing customers across all regions. The division has a record order book with increased visibility into 2020.

Vtech's Group revenue for the year ended 31 March 2019 rose by 1.5% to US\$2,161.9 million compared with the previous financial year. The increase in revenue was largely driven by the higher sales in Europe and Asia Pacific, which offset the decrease in revenue in North America and other regions. Gross profit for the financial year 2019 was US\$636.4 million, a decrease of US\$65.6 million or 9.3% compared to the US\$702.0 million recorded in the previous financial year. Operating profit for the year ended 31 March 2019 was US\$193.2 million, a decrease of US\$38.1 million or 16.5% compared with the previous financial year. Operating profit margin also decreased from 10.9% to 8.9%. The reduction in operating profit and operating profit margin was primarily due to the decrease in gross profit and gross profit margin, which offset the decrease in total operating expenses.

Profit attributable to shareholders of the company for the year ended 31 March 2019 was US\$171.3 million, a decrease of US\$35.0 million or 17.0% as compared to the last financial year. Net profit margin also decreased from 9.7% to 7.9%.

Group revenue is difficult to gauge for the financial year 2020, as new tariffs may potentially be applied to practically all Chinese imports. VTech is now assessing the impact and taking steps to mitigate it, which includes expanding its newly acquired production facilities in Malaysia.

Meanwhile, the pressure on materials prices is forecast to abate and labor costs to be stable in this financial year, which are positive to the gross margin.

Ducommun, Incorporated (NYSE: DCO) reported results for its second quarter ended June 29, 2019. Net revenue for the second quarter of 2019 was \$180.5 million, compared to \$154.8 million for the second quarter of 2018. The year-over-year increase of 16.6% was due to the following: \$20.1 million higher revenue in the company's commercial aerospace end-use markets due to additional content and higher build rates on large aircraft platforms; and \$6.9 million higher revenue in the company's military and space end-use markets due to higher build rates on other military and space platforms. These gains were partially offset by \$1.3 million lower revenue in the company's industrial end-use markets.

Net income for the second quarter of 2019 was \$7.8 million, or \$0.66 per diluted share, compared to \$1.6 million, or \$0.14 per diluted share, for the second quarter of 2018. This reflects a \$6.0 million increase in gross profit due to higher revenue and improved operating performance. Restructuring charges were lower year over year by \$5.4 million, partially offset by \$3.3 million of higher selling, general, and administrative expenses, and higher income taxes of \$1.1 million.

Gross profit for the second quarter of 2019 was \$38.1 million, or 21.1% of revenue compared to gross profit of \$32.0 million, or 20.7% of revenue, for the second quarter of 2018. The increase in gross margin year over year was due to favorable manufacturing volume, favorable product mix, and manufacturing efficiencies, partially offset by higher other manufacturing costs.

Operating income for the second quarter of 2019 was \$13.6 million, or 7.5% of revenue, compared to \$5.6 million, or 3.6% of revenue, in the comparable period last year. The year-over-year increase of \$8.0 million was due to higher revenue, improved operating performance, and lower restructuring charges in the current year.

Business Segment Information: The Electronic Systems segment's net revenue for the quarter ended June 29, 2019 was \$89.3 million, compared to \$84.5 million for the second quarter of 2018. The year-over-year increase was due to the following: \$5.9 million higher revenue within the company's military and space end-use markets due to higher build rates on other military and space platforms; and \$0.2 million higher revenue within the company's commercial aerospace end-use markets.

The Structural Systems segment's net revenue for the quarter ended June 29, 2019 was \$91.2 million, compared to \$70.3 million for the second quarter of 2018. The year-over-year increase was due to the following: \$20.0 million higher revenue within the company's commercial aerospace end-use markets due to additional content and higher build rates on large aircraft platforms; and \$1.0 million higher revenue within the military and space end-use markets due to higher build rates on military rotary-wing aircraft platforms.

The company also announced at the Paris Air Show that it is on track with its \$200 million contract to supply **Middle River Aerostructure Systems** with LEAP engine nacelle components for the Airbus A320 platform.

Company News

V.S. Industry Issues Profit Warning Amid China Slowdown

V.S. Industry (VSI) expects lower profits this year on slowing demand for EMS services in China and end-of-life programs for a key customer in Malaysia.

The EMS firm reported slowing demand at its Malaysia plants due to end-of-life programs and reduced orders from existing and new customers. VSI added that its China operations have excess capacity, and the company is downsizing those plants. The firm expects lower profits as a result.

Sales decreases will be partially offset by a ramp-up in production for Bissell carpet cleaners that began in September. It also won an order from a pair of new customers that could be worth up to \$72 million in revenue starting in fiscal 2020.

Jabil to Furlough 900 Workers Over the Holidays

Jabil will furlough more than 900 workers at its Silicon Valley plants over the Thanksgiving and Christmas holidays, the company indicated in a state filing last month.

This action will mark the second straight year the EMS company has sidelined its employees in the area.

Affected plants include South San Jose, Fremont, and Livermore, with a reported 909 workers scheduled to be left home during the plant shutdowns.

Closures will begin at selected locations the week of and after Thanksgiving. Other shutdowns will take place in late December.

Another area plant, the Silver Creek site, is wrapping up operations and will be shuttered permanently.

Ducommun, Incorporated Acquires Nobles Worldwide

Ducommun, Incorporated announced that it has completed the acquisition of **Nobles Worldwide, Inc.** ("Nobles"), based in St. Croix Falls, Wisconsin.

Founded in 1948, Nobles Worldwide is the global leader in the design and manufacture of high-performance ammunition-handling systems for military aircraft, helicopters, ground vehicles, and shipboard systems. Nobles is currently the primary ammunition feed chute supplier to most F-Series aircraft and naval close-in weapon systems in the US and supports more than 50 different such systems in 50 other countries worldwide. In addition to its full-sized, customized solutions, Nobles offers a range of systems for small- and medium-caliber weapon stations and medium-caliber turrets.

NOTE Secures Swedish Production Contract

Swedish EMS provider NOTE has started batch production for the fast-growing Swedish company **Human Care**.

The production takes place at NOTE's plant in Norrtälje, Sweden, and includes both electronics manufacturing and complete units.

NOTE manufactures lifting solutions for hospitals and geriatric care for Human Care. The production facility in Norrtälje has an overall responsibility for the manufacture of the products HeliQ, Altair, and Roomer S, as well as after-sales and service. Human Care has a range of products that enhance the mobility of people with special needs, a press release states.

Human Care's headquarters is located in Stockholm (Sweden) and international subsidiaries are based in Canada, the US, the Netherlands, and Australia.

ams Failed to Complete Its Takeover of OSRAM

The Austrian company's offer for OSRAM did not achieve the minimum acceptance threshold. However, ams says it remains committed to pursuing the acquisition.

ams did not reach the minimum acceptance threshold of 62.5% required in conjunction with the all-cash takeover offer for OSRAM Licht AG. The final acceptance level was 51.6%.

With that being said, as a result of purchases prior to the expiry of the offer, ams is currently the largest shareholder in OSRAM with a direct shareholding of 19.99%. However, the Austrian company will not exceed this current shareholding before having obtained the required merger control and other regulatory clearances.

ams continues to view the combination of the companies as strategically compelling, given that it would enable the creation of a global powerhouse in sensor solutions and photonics. Therefore, ams will continue to explore strategic options for pursuing the acquisition.

Kurt Adzema Joins Sanmina as CFO

Sanmina has named Kurt Adzema as Executive Vice President and Chief Financial Officer. Mr. Adzema succeeds David Anderson, who announced in January 2019 his plan to retire.

Mr. Anderson will help facilitate a smooth transition and will remain as an advisor to Sanmina's Executive Chairman through March 27, 2020.

Most recently, Mr. Adzema served as Chief Financial Officer of publicly traded Finisar, a supplier and manufacturer of optical communications products. "I look forward to working with Kurt. His extensive financial experience and strong leadership skills make him a great addition to our team. He will be a tremendous asset in the execution of our long-term strategy and disciplined approach to profitable growth, operational efficiencies, cash generation, and capital allocation," said Hartmut Liebel, Chief Executive Officer.

Officer.
Manufacturing Market Insider, October 2019

Scanfil Selects Siemens Opcenter to Digitize Operations

Finnish contract manufacturer and system supplier Scanfil has begun implementation of its digitization strategy.

Scanfil will use Siemens Opcenter Execution Electronics to improve manufacturing processes required to meet increased customer demand and quality, according to its press release.

"This is a significant step in our digitalization journey, and we are excited to implement Siemens' technology to help deliver greater value to our customers. This comprehensive package enables, for example, full connectivity through Siemens' IoT solution," Markku Kosunen, Chief Technology Officer at Scanfil, stated in a press release.

Scanfil is currently working through its first phase of implementation of the Siemens Opcenter solution, with plans to complete it in early 2020 and follow up with a global roll-out.

Samsung Ends Smart Phone Manufacturing in China

South Korean tech giant Samsung has ended its production of smart phones in China, as it has decided to cease operations at its Huizhou manufacturing facility—its last China phone factory.

The Huizhou manufacturing facility, located in southern China, was the very last of the South Korean company's smart phone operations still running in China, and now it will follow the same fate as Samsung's facilities in Tianjin and Shenzhen.

As pointed out by Reuters, the shutdown comes just after the company's decision to cut production at the facility in June, citing a harsh competitive market in the country. And as reported by the *South China Morning Post*, as early as February this year, the company had posted a notice at its gate stating that the factory has stopped hiring.

Samsung is, however, not the only smart phone production company that has chosen to leave China. Sony has also made the decision to stop producing phones in China, closing its Beijing plant and focusing its smart phone manufacturing in Thailand, as reported by Reuters.

Notebook Shipments to Increase 2% in 2019, Then Slip, Because of US Tariffs

Notebook shipments in 2019 are estimated to increase 1.6%, then slip significantly due to the 15% US tariff on Chinese-made notebooks, according to *DigiTimes*.

The notebook shipment increase this year coincides with vendors increasing inventory to prepare for the US-China trade war and growth of shipments for enterprise devices and Chromebooks.

Smart phone and tablet shipments are expected to decrease in 2019. In 2020, only smart phone shipments are expected to grow.

It is estimated that smart phone shipments will rise in 2020 as a result of 5G commercialization.

Global tablet volumes in 2020 are unlikely to stay above 130 million units. After 2020, the tablet market will rely on rigid demand, with shipments dropping 2–3% each year through 2024, to stabilize at 120 million units.

Lightspeed Manufacturing Moves to Larger Facility

Lightspeed Manufacturing has moved to a larger facility in Haverhill, MA to accommodate growth.

The new site, at more than 10,000 square feet, permits the EMS firm to expand services to its existing customer base, as well as new customers.

Lightspeed has also made significant investments in new capital equipment.

Compeq Sales Hit High, Reportedly Due to PCB Shipments to Apple, Huawei

Compeq Manufacturing has posted record high sales for September, reportedly propelled by increased shipments of PCB products for Apple's iPhone 11 lineup and Huawei's Mate 30 series. September revenues reached NT\$5.93 billion (\$192.4 million), up by 6.3% on month and by 12.9% on year. Revenues for the third quarter totaled NT\$16.294 billion, up 34.84% sequentially and 10.58% on year.

Compeq said its order visibility will become clearer after November. Industry sources said Compeq's sales will remain at least stable in the fourth quarter, as it has received follow-up orders for the iPhone 11 devices. Initial sales of the iPhone 11 lineup and Mate 30 family products have been stronger than expected.

Quanta Supplying Apple with Unspecified Autonomous Driving Solutions

According to a *DigiTimes* report, Taiwan-based **Quanta Computer** is supplying **Apple** with an unknown number of "autonomous driving solutions."

Quanta has confirmed that it has developed and tested the first autonomous vehicle in the US. It was also mentioned that the vehicle was tested on tracks and this helped establish Quanta's ability to design and produce an autonomous driving platform. Apart from that, Quanta didn't reveal any other details about the vehicle or the exact way in which it was tested.

"With the test of its autonomous vehicle, Quanta is now able to prove its ability in designing an autonomous driving platform, which is expected to assist the company to obtain more partnerships," said the sources, adding that Quanta is currently one of the suppliers of Google's and Apple's autonomous driving solutions.

Earlier this year, Apple acquired Drive.ai, a self-driving vehicle firm. It is worth noting that Drive.ai was going through turbulent times and was on the brink of shutting down. There has been considerable ambiguity about what exactly Apple is doing. Some reports are hinting at an autonomous vehicle, while others are suggesting that Apple has been developing an electric vehicle.

Quanta Computer is a major supplier for Apple. The company has been assembling the Apple Watch since 2015 and is now considering

stopping taking orders as profit concerns loom large. Scaling up autonomous car projects has been very difficult. Despite being a large corporation, Apple had laid off 190 employees from its self-driving Project Titan. It will be interesting to see how Apple may scale up Project Titan.

FIH to See Sales from Google Pixel 4 Shipments

FIH Mobile, a Hong Kong-listed handset arm of **Foxconn Technology Group** (Hon Hai Precision Industry), is expected to see its fourth-quarter revenues driven by shipments of the new **Google** Pixel 4 device, according to market sources.

Production orders for the Pixel 4 smart phone are expected to be shared between FIH and **Compal Electronics**, the sources said.

Previously, all of Google's smart phones and smart speakers were manufactured at FIH's plants in Shenzhen, China, but starting in 2019, some of the personnel of the projects have been relocated to FIH's plants in Vietnam to support related production there.

Server ODMs Feel Pressure from Intel CPU Shortages

The impact of shortages of **Intel** 14-nm CPUs seems to be rippling out from the PC sector to the server sector. Several ODMs now see tight supply for Intel's 14-nm CPUs, with stocks reportedly going under safe levels. Despite the pressure, the server ODMs' CPU stocks will still be enough to last through the fourth quarter of the year. In the flat panel industry, Chinese makers remain keen to build up their OLED production capacity. It is expected that 10 new 6G OLED fabs will come on line in China by 2021.

For ODMs, profit margins for a lot of products are usually low. The profitability of making the Apple Watch, for instance, is said to be so low that its primary maker, **Quanta Computer**, is considering quitting (see the following article).

Quanta May Stop Assembling the Apple Watch in 2020 Due to Profit Concerns

Quanta Computer will likely stop taking assembly orders for the Apple Watch at some point in 2020 due to profit concerns, and may sell its manufacturing plant in Changshu, China dedicated to assembling the wearable device, according to industry sources cited by the Taiwanese publication *DigiTimes*.

Quanta has been the primary manufacturer of the Apple Watch since the original model was released in 2015, while **Compal Electronics** reportedly became a secondary supplier starting with Series 4 models last year.

Notebook Vendors Determined to Move Production Out of China

Notebook brand vendors who hesitated about moving production out of China in the wake of the trade war have now determined that they must do so, as the disputes between the two superpowers are unlikely to end any time soon. The vendors are now asking their ODMs to accelerate the relocation of their production out of the world's factory. **Compal Electronics** will expand its capacity in both Taiwan and Vietnam, according to sources from the upstream supply chain.

While the notebook market is unlikely to see any major growth next year, the smart phone market is expected to see strong stimulation from 5G commercialization.

MediaTek has become more upbeat about 5G smart phone shipments in 2020, and has increased its orders for 5G SoCs to be manufactured at **TSMC**. More of MediaTek's handset clients in China have taped out 5G-focused smart phones using its SoC solutions, according to industry sources.

TT Electronics Signs Deal with Ultra PCS

TT Electronics' Fairford facility has been awarded a multimillion-dollar contract by long-time customer **Ultra Electronics Precision Control Systems** (Ultra PCS).

Ultra PCS is a specialist in high-integrity control products for aerospace, military vehicle, and soldier applications. With this contract award, TT "will build highly complex electronic assemblies for Ultra PCS' engine ice protection systems for modern combat aircraft," a press release states.

Qisda to Set Up China JV to Tap Hemodialyzer Market

EMS provider **Qisda** will set up a joint venture in China, **BenQ Biotech** (Shanghai), with China-based **Shanghai Kunxin Medical Technology** to produce hemodialyzers for sale in the Chinese market. Qisda will invest CNY240 million (\$33.7 million) for a 70% stake.

Qisda's subsidiary **BenQ Dialysis Technology** has developed hemodialyzers for in-house production and own-brand sale, and obtained certification and a marketing license from South Korea's Ministry of Food and Drug Safety in August 2018, with marketing there beginning in the fourth quarter of 2018.

Foxconn's Wisconsin Plans on Hold

There is reportedly little evidence that **Foxconn's** plans for innovation centers in Wisconsin are moving forward, according to local media reports.

The firm announced in 2017 that it planned to invest \$10 billion in the state and hire 13,000 workers to build an LCD factory. Company officials then shared plans to construct centers in Milwaukee, Green Bay, Eau Claire, Racine, and Madison.

Now, development directors in those cities say plans are delayed, as

Foxconn appears to be focused on its main manufacturing campus in Mount Pleasant.

STMicroelectronics Creates 400 New Jobs in Singapore

On September 17, 2019, STMicroelectronics officially opened the doors of its SG8E Fab expansion in Singapore.

The company has been operating in Singapore for a long time now—50 years to be precise—opening its first factory with assembly and testing back in 1969, a beginning now being celebrated with the inauguration of its SG8E expansion.

ST opened its first wafer fab (5-inch), wafer sorting (5-inch), and IC design facilities in Singapore in 1984. Subsequently, its first 6-inch wafers came out of the Singaporean fabs in 2000. In 2010, the company rolled out its first 8-inch wafers from the ST TechnoPark.

With its 15,500-square-meter clean room, the SG8E expansion will increase the company's 8-inch wafer capabilities as well as add 400 new employees to the company's workforce in Singapore, the company writes in a blog post.

The company says that it will focus its new manufacturing capabilities on power devices and microcontrollers for automotive, industrial, and consumer applications.

Intel to Increase Output

Notebook ODMs have again been hit by **Intel** CPU shortages. But Bob Swan, visiting Taiwan for the first time as Intel's CEO, said his company is expanding production capacity, particularly for 14-nm processors. Swan noted that Taiwan has played a critical role in helping Intel get through 2019, a year considered a difficult one for semiconductors. And indeed, Taiwan's semiconductor sector has been spending more on chip-making

equipment purchases this year, despite the US-China trade war that has caused manufacturers to move their production lines out of the "world's factory." Now **Google** is having its manufacturing partners set up production lines in Thailand and Vietnam.

Taiwan's imports of semiconductor equipment shot up 65.1% year on year to US\$2.5 billion in September and surged 32.2% to US\$15.5 billion for the first three quarters of 2019, according to customs statistics.

Apple Starts Production of iPhone XR in India, Plans to Add iPhone 11

Full-scale manufacturing of **Apple's** iPhone XR has now started at **Foxconn's** plant near Chennai, India, following several weeks of trial runs. It also follows months of negotiations over required governmental approvals, with Foxconn initially confirming iPhone production back in April.

At that time, the company would not specify which models of iPhones would be built in India. More recently, there were reports that the iPhone XR and iPhone XS would be produced in time for August shipments. Again, however, sources said that unnamed approvals were pending.

The iPhones made in India will not be solely for that market. Reportedly, the plan is to export at least some devices from India to other markets, including Europe.

The move to produce iPhones in India is significant because of local taxes, Apple's move to diversify its production away from solely relying on China, and its continuing investment in India. Apple previously used the manufacturer **Wistron** to make iPhone 6s and iPhone SE models in India for the same reasons.

Due to India's laws favoring the use of locally sourced components in devices, Apple stands to save around 20% of the production cost of the iPhone XR by moving its manufacturing.

India Sees Opportunity in Trade Fight: Luring Big Companies from China

India is making a push to get **Apple, Inc.** and other big brands to switch production there as the risks of manufacturing in China rise along with trade tensions.

Finance Minister Nirmala Sitharaman has slashed corporate tax rates to as low as 15% for companies that invest in the coming years.

One industry Indian policy makers are targeting is cell phone manufacturing. The government is crafting a new set of rules to encourage the creation of clusters of international phone brands and parts makers that would make phones exclusively for export, according to people familiar with the plans. Companies in the clusters would have lower import tariffs for components and would be first set up in states that guarantee that rents and electricity bills won't be raised for 10 years, the sources said.

Samsung Electronics, Inc. is already building one of its biggest facilities in the world near New Delhi, and existing factories that manufacture for Apple are retooling their operations to make some of the company's most sophisticated phones for the first time in India. Both companies have been asking for concessions to make India a more competitive place to invest.

Close to \$72 billion in imports to the US from low-cost countries in Asia has shifted away from China in recent years, according to a report from consulting firm A.T. Kearney. After Vietnam, which has captured the lion's share of the shift, India is the second-largest destination.

Fitbit Production to Shift Out of China Starting in January

Fitbit, Inc. will manufacture all its trackers and smart watches outside of China as of January 2020, the wearable device maker said. It is the latest US company seeking to insulate itself from tariffs.

The company said it began exploring alternatives to China in 2018 as Washington and Beijing engaged in a tit-for-tat tariff war that has upended global supply lines and roiled financial markets.

Fitbit did not reveal the new manufacturing location, saying only that it would provide more details on the impact of the move during its upcoming third-quarter conference call.

Publisher: Randall Sherman

Editor: Anna Reynolds

Sr. Research Analyst: Vivek Sharma

Board of Advisors: Michael Thompson, CEO, I. Technical Services; Ron Keith, CEO, Riverwood Solutions; Andy Leung, CEO, VTech Holdings, Ltd.

Manufacturing Market Insider is a monthly newsletter published by New Venture Research Corp., 337 Clay St., Suite 101, Nevada City, CA 95959. Phone (530) 265-2004, Fax (530) 265-1998. Copyright 2019 by NVR™. ISSN 1072-8651

The information and analysis presented here are based on sources believed to be reliable, but content accuracy is not guaranteed. The publisher shall not be held liable for any business decisions influenced by this publication.

E-mail: rsherman@mfgmkt.com

Website: www.newventureresearch.com

Subscription Form

I want an electronic subscription to **MMI**. Email me 12 monthly issues (PDF files) for the annual cost of US\$615.

I want a print subscription to **MMI**. Send me 12 printed issues for the annual cost of US\$715.

Payment is enclosed to New Venture Research Corp.

Mail or fax to: NVR Corp., 337 Clay St., Nevada City, CA 95959. Phone (530) 265-2004, Fax (530) 265-1998.

Please bill me. Charge my credit card (see below).

Name _____ Title _____

Company _____ Phone _____

Street Address _____ Fax _____

City/State/ZIP _____ Email _____

MasterCard _____ Visa _____ AMEX _____ Number _____ Expires _____