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## Welcome to Computex 2017: New friends, renewed rivalries

Micahael McManus,  
DIGITIMES

After several years where players in a post-mature PC industry have been more concerned about making sure they clear out inventory rather than consistently introducing new innovations to the market, Computex Taipei 2017 is gearing up to be a throwback show, where industry heavyweights go toe-to-toe with their latest technology offerings, much like they did in the old days. At the same time, new partnerships and new industries will gain more spotlight, as a reminder that things are much different now in the IT industry than they used to be.

Computex will be held between May 30 and June 3 and will feature a full slate of PC and IT offerings, including new CPU designs, updated GPU lineups and assorted gaming and virtual reality (VR) demonstrations. Moreover, in a tribute to the way the show has evolved, expected highlighted themes also include artificial intelligence (AI), robotics, IoT and startups. More than 1,600 companies from around the world will roll out their latest products and technologies at 5,010 booths where all aspects of the global high-tech ecosystem are

showcased, TAITRA noted.

On the PC side, the big news this year has been the revival of AMD with the launch earlier this year of its Ryzen desktop CPUs, whose performance has been benchmarked to compare surprisingly well with the likes of Intel and this has perhaps placed a wake-up call to the chip giant when it comes to competition in the PC market.

According to a previous Digitimes report, Demand for AMD's Ryzen 7- and Ryzen 5-series CPU products has continued rising. The company's revenues are expected to increase 17% this quarter and the chipmaker may be able to narrow its losses to below US\$50 million in the quarter. AMD is also expected to launch its 16-core Ryzen processors, X399 chipsets and entry-level Ryzen 3 series processors in the third quarter in order to continue its momentum.

Motherboard makers, for their part, are enjoying the renaissance of the chipmaker, as it is always better to have more competition among its customers than less. The makers have noted that AMD's new AM4-based platform has strongly simulated consumer demand for AMD-based products.

However, we should note that

the motherboard market has been shrinking for several years, so any excitement about new products need to be balanced with a measured conservative attitude that most motherboard makers have had in the market, meaning that visitors can expect motherboard players to take a wait and see attitude when it comes to AMD, or Intel for that matter.

In response to the renewed interest in AMD, Intel is expected to unveil its top-end desktop Basin Falls platform (x-series) consisting of Skylake-X and Kaby Lake-X processors and X299 chipsets, targeting gaming, virtual reality (VR) and overclock markets, at Computex 2017 with the official releases at the end of June. Numerous media outlets have been touting Intel's planned launch as having the chip giant delivering the most powerful desktop solutions, with the most cores, on the market.

These Intel solutions won't be available for viewing until late in the afternoon on the first day of Computex, as the company has its planned keynote scheduled for 3:00pm on the first day of the show. After that visitors should visit the numerous Intel partners located around the show to view the company's demos.

On the mobile side, leading



▲ VR to be highlight of Computex Taipei 2017

Taiwan notebook vendors Acer and Asustek have already revealed their hand before the show even started. Acer announced its new Nitro notebook line for casual gamers last week, with the vendor offering a variety of configurations.

Gamers can choose from configurations featuring up to Nvidia GeForce GTX 1050 Ti graphics paired with 7th Generation Intel Core i7 or i5 processors, or models with AMD Radeon RX550 graphics with 7th Generation AMD A-Series FX, A12 or A10 APUs. These models all feature Windows 10, and support up to 32GB of DDR4 2400 MHz memory.

All models offer a 15.6-inch FHD (1920 x 1080) IPS display.

Asustek is focusing on its high-end notebooks featuring Intel Core i7 mobile processors with its ZenBook and VivoBook series of notebooks. The day before

Computex, the vendor held a press conference where it revealed a lineup of five notebooks, including solutions featuring a rotatable screen, one with an ultra-thin bezel and all with ultra-thin footprints.

On the graphics side, many are rooting for the rivalry between AMD and Nvidia to be renewed. AMD will be launching its Vega solution later this summer and visitors will be able to find out more when AMD hosts a press conference on Wednesday, May 31, 2017 at 10am. Company CEO Lisa Su was recently quoted as saying that initial shipments of Vega will be frontier editions, which will begin shipping at the end of June and which will feature 16GB of memory. Products for the enthusiast market, machine learning market and the professional graphics platform will follow soon after that.

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# Taiwan players expect AI to benefit PC hardware supply chain

Aaron Lee, Taipei;  
Joseph Tsai, DIGITIMES

Artificial intelligence (AI) and robots are both hot topics for Computex 2017 and will become focuses for the IT industry for the next several years. Taiwan's PC and server supply chains are expected to greatly benefit from the business opportunity because of the technology's heavy reliance on PC calculation.

Quanta Computer chairman Barry Lam recently pointed out that AI is a new milestone for technology development. For devices such as smartphones and smart TVs, what the IT industry did was made them smarter, but AI is different. The technology can learn, correct its mistakes and choose a better solution for problems and in the next several years, it will create many applications and commercial values for the market.

Lam said that AI can be applied onto many different kinds of applications including medical care, autonomous driving, automation and smart city management. Currently,

players such as Google, Microsoft and Facebook are all aggressively investing resources on related development. Consumers will be able to use their AI services with cheap prices and these AI and big data's analysis will help society to advance and create business opportunities for industries.

Quanta and Nvidia are also forming partnerships to develop AI super computers because of GPU's calculation performance. Technologies such as face recognition, autonomous driving and robots can all be supported by GPU compute.

Lam expects the notebook industry to continue suffering from decline in 2017, but cloud computing applications will continue to enjoy growth and the trend will also be the same for Quanta's related businesses. For storage, the product line has been growing rapidly and many consumers are just store their data in their cloud computing system, but usually don't discard them. This is becoming the sources for big data analysis as related storage volumes continue expanding.

With the cloud economy growing,

demand for cloud computing's hardware has also been picking up and boosting Quanta's revenues from the segment. As for end devices, smartphones are currently the largest in terms of volumes, followed by notebooks. Wearable devices are still not yet mature. However, cloud computing's profits are still generated mainly by services.

In addition to server-related hardware, Quanta's R&D labs also had an independent business unit handling medical electronics development and its focus is to integrate AI systems into its existing medical electronics platform and push the platform into Taiwan's hospitals and clinics. Quanta is also optimistic about autonomous driving applications and has already prepared to develop cloud hardware for the application.

Autonomous driving is still in the phase of development and many IT players such as Google and Baidu as well as car vendors such as Tesla, Volvo and Benz have been pushing in-house systems. However, to let systems identify each country's

different driving status, rules and habits will become a major issue waiting to be resolved.

Lam noted that the 5G network is necessary for autonomous driving because the network has a higher frequency, which will allow quicker responses. The ability to do calculation at base stations and autonomous driving vehicle's cloud computing system are both development focuses for Quanta currently.

Sensor systems for end products are also a development direction that Quanta is currently expanding into, said Quanta vice chairman CC Leung. Another expansion of AI is robots, Leung noted that industrial robotic arms are the main product line for Quanta's robot business. In the past, robotic arms were only able to do simple moves, but now they are capable of doing more precise works thanks to improved camera technology.

Quanta's affiliate Quanta Storage is currently developing collaborative robots and is gradually adopting them into its production lines in 2017. As for companion-type robots, Quanta

currently has no plan to enter into the related industry.

Lam doubts that companion-type robots will see strong demand in the next 10 years, but AI is expected to replace many current solutions in the next 20 years, as AI development continues to advance. By 2050, 45% of the human workload will be taken over by AI and humans will have more free time.

Commenting on AI applications, Inventec president Huang Kuo-chun noted that servers are only seeing flat shipment performance at the best in the traditional enterprise application market, but in the datacenter market, they are enjoying high shipment growth. Intel, AMD and Nvidia have all invested aggressively in related product lines, showing the potential of the AI market, Huang pointed out.



...Continued from page 1

Nvidia, on the other hand, may or may not make an announcement at Computex about its graphics cards. The company noted at its most recent investor conference that demand remains healthy for its enthusiast class GeForce GTX 1080 GPU, introduced nearly a year ago. That product was complemented this past quarter with the GTX 1080 Ti, which runs 35% faster and was launched at the annual Game Developers Conference in San Francisco. The GTX 1080 Ti is designed to handle the demands of 4K gaming and high-end VR experiences.

Early in May, Nvidia did release its Nvidia Volta GPU architecture, which was created to drive next-generation artificial intelligence and high performance computing solutions. And there are now rumors that the graphics

maker may announce a Volta-based GPU for enthusiasts at Computex.

While players in the CPU and GPU markets are getting a chance to revisit former rivals at the show, other major market players are further developing their friendships.

For example, Qualcomm and Microsoft are reportedly looking to bring ARM notebooks back to the market. ARM recently revealed that a Snapdragon 835-based Windows 10 notebook will be launched in the market by the end of 2017 and some market watchers believe ARM and Microsoft's partnership is expected to focus on conquering the weakness in the software ecosystem and could bring pressure to Intel. The two companies have a co-hosted event planned for Computex, with the hopes that a major announcement is planned to move this

market forward.

While the traditional PC is always for visitors to Computex, the show has attempted to spread its coverage in recent years to highlight emerging industries such as IoT.

Gartner forecasts that 8.4 billion IoT devices will be in use worldwide in 2017, up 31% from 2016. Total spending on endpoints and services will reach US\$2 trillion dollars in 2017. In view of these trends, Computex has joined hands with technology leaders like Asustek, Intel, Nvidia, SuperMicro and Tesla, a Computex first-timer, in the event's first press conference today to shed the first light on IoT, AI and other next-generation applications.

Computex will also feature four exhibition areas to highlight emerging industries. The first is SmarTEX, which will focus on five major IoT

applications, future commerce and lifestyles.

As Asia Pacific is playing a bigger role in the IoT supply chain, the region is also a key player in areas from R&D, manufacturing, end products to user experience. SmarTEX, to be showcased at Taipei World Trade Center Exhibition Hall 1, will display IoT applications in security surveillance, smart home & entertainment, smart wearables, IoV & automotive electronics, and smart tech solutions, as exhibitors from Taiwan and abroad join hands to give the world a glimpse of future commerce and lifestyles.

InnoVEX is a special exhibit for innovative startups featuring high-tech industry's next main drivers. The exhibit will focus on six themes — IoT, autopilot system, startup ecosystems, digital economy, AI and

IT policies opening from May 30 to June 1 at Taipei World Trade Center Exhibition Hall 3. A series of forums, competitions, presentations, business matching events and interaction activities will also be organized to help foreign startups find their feet in Taiwan and help Taiwan-based startups align with international trends.

iStyle for Apple MFi-certified products is another area of focus for Computex. With Taiwan being a key player in Apple's supply chain, the iStyle pavilion is set up at Taipei Nangang Exhibition Center Hall 1 for display of Apple MFi-certified products. The pavilion received great feedback when it debuted in 2016 and will be expanded this year.

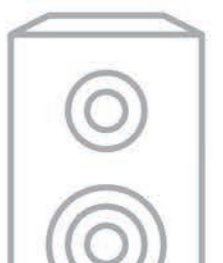
Gaming & VR is the last area of focus. Gaming is emerging as a leading application for post-PC software

and hardware era. The Gaming & VR exhibit at Nangang Exhibition Center Hall 1 will showcase gaming notebooks, gaming desktops, graphics cards, gaming peripherals and other advanced hi-performance gaming products.

Being the world's leading B2B trade show, Computex will also accommodate dozens of special exhibits such as systems & solutions, business solutions, embedded products, communications & networking, and more. Tesla will demonstrate its industry-leading technology on the 4th floor of Nangang Exhibition Center. In addition, Dell will return to the show after being absent for a decade. With its goal of building global technology ecosystems, Computex 2017 aims to lead the world's ICT industry to an even bigger market.



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# IoV market holds strong potential for Taiwan-based makers

Adam Hwang, Taipei

While smart cars, connected cars or autonomous cars have been in frequent and diverse discussions across the IT industry, it has been the automobile industry that has been focused on the related development of cloud computing, artificial intelligence, fusion of sensors and Big Data analysis technologies that are needed to make autonomous cars a reality.

Telematics, connected cars, ADAS (advanced driver assistance system), smart cars and autonomous driving have successively marked the evolution of automotive technology since 1995. The development of automotive technology has progressed from feature-driven in the past to data-driven at present and will further progress toward AI (artificial intelligence)-driven in the future.

The decade 2011-2020 is the period for booming development of data-driven automotive technology, with ADAS and Internet of Vehicles (IoV) being two key technologies. US- and Europe-based enterprises, including IC designers and Internet service providers, have mostly dominated the global ADAS market, while IoV has begun to come into large-scale deployment, with increasing adoption of 4G- and GPS-based telematics boxes (TBox) for mainstream car models.

The European Union has decided to require that all new car models be equipped with automatic emergency call systems (eCall) beginning in 2018, while the China government demands that all types of new energy cars, including electric vehicles, be equipped with TBox. This signals the forthcoming wide application of automotive information and communication technology

(ICT). In particular, TBox can provide functions of automatic emergency calls, in-car video/audio entertainment services and other value-added services.

Major automobile makers around the world have begun the integration of different technologies, with 70% of the IoV platforms providing navigation, in-car entertainment, driving safety and insurance services. The large potential growth in demand for IoV services has attracted technological platforms and providers of various digital services and has led to quick progress in technological developments and continued changes in business models. Many large automobile makers have obtained innovative technologies through large investment and mergers, while many start-up businesses have cut brilliant figures by virtue of their innovations.

IoV technology will cause large changes in the automobile industry in terms of business models, ecosystem, market condition, marketing and distribution. Upon commercial use of 5G mobile communication networks evolving from 4G technology, communications among data about vehicles, roads, pedestrians and traffic infrastructure will be much faster and thereby driving safety, traffic regulation and efficiency in using roads can be significantly improved to upgrade driving experience.

## Taiwan-based makers eyeing fast growing China car market

The China government, in order to reduce air pollution and oil consumption, will bring into effect a new energy car policy in 2018 that every automobile maker in China should hike the

proportion of their output for new energy cars to at least 12%. There were 28 million cars sold in the China market in 2016, the globally largest car market for eight consecutive years since 2009. However, electric vehicles take up less than 2% of all cars in the China market at present. Based on US- and Europe-based vendors' plans to develop new models of electric vehicles in China during 2018-2020, development of electric vehicles is definitely a global tendency and the China market for new energy cars will become a stepping stone for automobile makers to compete in the global market.

Development of new energy cars - simply or generally called smart cars - is closely related to industries of energy, machinery as well as ICT. In terms of energy alone, new energy cars are defined as vehicles powered by either purely by electricity or by a combination of electricity and oil, and there has been a breakthrough in development of electric vehicles due to the development of lithium ion batteries. In addition to differences in use of energy, new energy cars are distinguished from conventional ones by smart driving safety systems by which sensors are used to monitor driving and surrounding road conditions, and microcontroller units and image processors are connected with the car's internal control systems to increase driving safety.

As leading IC design houses have focused technological innovation on developing ICs used in driving safety through the cooperation with automobile makers, TBox solutions have been increasingly adopted. In addition, mobile telecom carriers have promoted car connectivity via a car-use chip SIM, an alternative to car connectivity via smartphones.

Taiwan-based high-tech players have played active roles in development of sensors and sub-systems such as image sensors, ultrasonic sensors, millimeter radar as well as automotive electronics. For example, some Taiwan-based LED automotive lighting makers have become suppliers for leading automobile makers or first-tier suppliers for other car makers.

In the China market, automobile supply chains are developing quickly along with heating-up competition and consequently, low-cost solutions based on key technologies have been increasingly available. For example, future 5G technologies can enable quick communications among cars through instant integration of data collected via monitoring and detection. In addition, China-based makers have developed ADAS using AI technology driven by 5G-based powerful computing capability and applied sensor fusion technology to the detection of tires, automatic inspection and maintenance of engine systems as well as integration with smartphones.

As automotive electronic controller units, in-vehicle infotainment systems, and ADAS and other electronic devices are driven by software and rely on software for correcting errors, this has brought business opportunities for Taiwan-based PaaS (platform as a service) software providers to offer cloud computing-based OTA (over the air) update services for software and firmware used in TBox-equipped cars in the China market. The software services of these Taiwan-based providers are used in car movement recorders on an OEM basis and product lifecycle management solutions based on OTA and virtualization technology for automotive parts and accessories.

Viewing that more than 500 new car models are unveiled in the China market each year, Taiwan-based suppliers have begun to offer 9-inch automotive image display systems equipped with as many as eight lenses and, based on development of ADAS and IoV, offered solutions through integrating cloud computing services with software to create brand reputation and set up close partnership with users.

Taiwan-based mobile telecom carriers, in view of after-market business potential with 6-7 million existing cars, have capitalized on an alliance with international mobile telecom carriers to allow connectivity for imported cars and have provided connected car services using e-SIM technology. In addition, they have provided economical solutions to meet enterprises' demand for vehicular fleet management.

Taiwan-based makers have long been engaged in development and production of electronics and are enthusiastic about IoV. However, in the long-term after-sale services needed for cars require a relative long period time taken in testing and certifying automotive electronic components and accessories. Therefore, it takes time for Taiwan-based makers to adjust their concept of product design to comply with standards required for quality and safety of cars. Nonetheless, IoV is relatively easy for Taiwan-based makers to enter.

But these developments also herald the approach of large changes in the conventional supply chain, as players actively seek technological innovations, as well as a change in business culture, vision, operational management and labor structure. As a result, barriers for entering the supply chains will become increasingly larger.



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# The enterprise platform revolution of 2017: An opportunity for Taiwan vendors to take the lead

Contributed by  
**Nebojsa Novakovic**

With all the overcooked buzz about mobility, IoT and other consumer-oriented market speak, it is easy to forget the less sexy, but far more profitable and strategically important enterprise computing segment. After all, all that data on your phone or tablet does come from, or through, some kind of server in the end.

This is my 33rd year in the high-end computing field – and it marks over 33 years from the first general-purpose CPUs such as the Motorola 68010 and Intel 80286 that embraced the concepts of Virtual Memory and Virtual Machines, areas that have made the existence of modern commercial datacenters possible. Over that period, I have watched countless platforms at both processor and board/system level come and go – some brand new, others offering repeated iterations of quite similar stuff due to a lack of competition, at least this past decade.

I observed Taiwan vendors, big and small alike, attempt to gain their own foothold in the server brand business, sometimes with revolutionary platforms – anyone remember Acer's 64-bit MIPS systems running Windows NT in 1992, or Tatung SPARC workstations even before that? It didn't go that well after all, and – despite providing almost half of world's server and workstation

platform hardware today, Taiwan industry still only scrapes a bit of this immense treasure pot by providing unenviable-margin OEM board and system solutions for someone else's CPUs and/or GPUs (yes the latter are increasingly common even in mainstream servers). The relative snail's pace of server platform refresh didn't help gain recurring revenues either.

## Once-in-a-generation opportunity

Well, after those 33-odd years, this is the first time that, in a single year, almost all high end CPU platforms present in the enterprise space are launching brand new platforms on both the CPU and board infrastructure level – a landmark event never seen before.

Within the space of roughly three quarters (2Q17-4Q17) this year, you'll see nearly a dozen new distinctive entries, all needing brand new board and system-level designs. The big one, Intel, has the Socket 2066 and, more importantly, big Socket 3647 that at least the next three generations of its Xeon platform will use, starting with "Purley" Skylake-SP. The sheer physical size of this socket - designed to accommodate extra-large CPU chip dies PLUS future stuff like HMC/HBM memory and FPGA on an optional MCM substrate, coupled with three-quarters more pins for 50% more memory channels and extra

power&ground lines providing for 200W++ TDP allowances - require radical improvements in board quality and performance, even borrowing tricks from today's top overclocker gaming boards to feed the need, quite literally.

Then we come to AMD: Jerry "Colonel" Sander's baby is back in action after a decade of absence from the enterprise CPU arena. Besides the Ryzen AM4 socket, the real money maker here for the company is support for the new "Naples" platform and its derivative uber-desktop variants with an even more humongous Socket 4094. Made to beat the above Intel offering in the sheer size and pin count, this thing allows for up to 4-die CPU MCM and 8 memory channels outside, again with even more power and ground lines to feed all this – meaning even more complex (and more chargeable) board & system designs.

How about IBM and its OpenPOWER alliance? Well – aside from China having received that very, very affordable POWER8/9 etc. licence over two years ago, there wasn't much opportunity for it in the region – until last year, when the IBM-Nvidia partnership created the first shared memory POWER8+Pascal solutions. This year, we have the brand new POWER9+Volta combination in an all new format, which will power two of USA most powerful upcoming supercomputers as well, trying to finally take back the Top1 position from China.

At the board level, you could now have, say, two POWER9 chips plus 4 or even 8 Volta GPUs in MXM, all on a common NUMA NVlink interconnect matrix in one memory space. We're talking up to US\$100,000 single board modular solutions there, and the board component alone would be worth several thousand. And that doesn't touch on the truly advanced cooling and power delivery. No more

air flow stuff there – you'll have to liquid cool everything, even including the power supplies!

And while we're mentioning Nvidia Volta, it will have a number of card formats for the vendors to implement their single and multi-GPU solutions. MXM is my favorite, although standard (short and long) PCIe formats will maintain their presence. NVlink can enable a vendor to design an easy dual-GPU card as well at the pro level – this board opportunity will repeat on the AMD Vega platform too, due to both sharing similar integrated GPU&HBM design approaches.

This means justification for the board and the rest of the system hardware. And for those Taiwan vendors willing to invest in creating best-of-breed components, it means attracting both higher prices and higher actual margins, after a long lull of just skimping by.

And, it's not restricted just to the old CPU/GPU vendor club. Remember, among other ARM vendors, this is the year Qualcomm rolls out its server CPU offerings. Some of them may even come from their China server design JV in Guizhou, out of all places. Talking about that...

## The China factor

The last – but not least – couple of new major platform opportunities come from right across the narrow Strait. Until recently, Mainland China hasn't had much of own great system or board-level design experience to talk about, at least for publicly available products. Taiwan does have major board production, and in some cases design, bases in China, but the real opportunities for what could be done on board-level partnerships (on both sides of the strait) are huge.

That has of course changed, with vendors such as Lenovo and Inspur having very good board-level server and workstation designs for their brands these days, and more of the

Taiwan design experience staying in China.

However, China has had a huge advantage over Taiwan in this area. It has control over (nearly) whole technology stack. For all its production value and contribution to the market, Taiwan has no control over the CPU and GPU chips that go inside all those shiny boards it makes, and both the real profit and technology grip are in those chips. While Taiwan has for decades had the resources, funds and semiconductor production base to be able to compete at top-end CPUs if it wanted, the will to do so has withered with the sunset of companies such as VIA, Tseng Labs and such.

China, on the other hand, took the bold step – and more than a few costly errors along the way – and developed sufficient high-end CPU and platform capabilities and technology control, to match and actually overtake the US in some areas, like World Top1 supercomputer on TOP500 list for over a year has been ShenWei-based TaihuLight in Wuxi.

The strategy was: control over the instruction set, CPU architecture, implementation and manufacturing (despite the initial fab process disadvantages). That was followed by control over the firmware, OS, compilers, software tools and such. Of course, board level designs were at start spartan, just designed to be good enough to run. You did not see the special 'bells & whistles' at those initial launches that you might see at Taiwan vendor board launches.

But, the overall result was full control over both technical (including performance and security from attacks) and financial benefits from the platform.

All this is said to understand the platform opportunity for Taiwan vendors starting this fall: the two key high-end China CPU platforms, Shenwei (greatly inspired by Alpha) and Phytium (world's fastest ARM),

will enter limited pilot commercial markets for their top-end CPUs: the 260-core Shenwei SW26010, and the 256-core Phytium FT-2000 ARM processor. I have watched over the evolution of both of these processor families intimately over the years, and if I was a US CPU vendor, would not discount them anymore. After all, both of these will likely have full Exascale systems deployed in 2020, a full two years ahead of currently planned US and Japan systems of this kind.

These processors have unique features like 8-channel or even 16-channel memory systems, comparatively low power for the multi-teraflop performance they provide, and provide a great opportunity to further enhance performance by new, improved, ultra high boards to hold them, whether in solo systems or big datacenter setups.

This is where the Taiwan industry can excel, as these CPUs from their brethren across the water need the ecosystem that Taiwan vendors know well how to develop for the others, after all. There's money on the table, coupled with a huge international incremental market.

## The way forward

This Computex, you will see most of the brand new platforms described here – whether in the open or behind the curtain. For the buyer, this year's unprecedented enterprise CPU platform launch fireworks will mean a massively increased choice pool for their next server or workstation or even uber-VR content box.

And for our Taiwan board & system component vendor friends? Well, let's not miss this once-in-a-generation opportunity to grab a pole position in the ecosystem build up for all these new platforms, and combine the best of technologies to show the design superiority and, yes, make more money out of this tough business. Makes sense?

## A selection of most relevant new socket formats arriving in 2017

Company	Socket name	Target market segment
Intel	Socket 2066	W/S and entry level server
Intel	Socket 3647	mid and high-end server
AMD	Socket AM4	W/S and high end desktop
AMD	Socket 4094	mid and high-end server
IBM	POWER9	mid and high-end server
Nvidia	Volta MXM	GGPU w/s & server
Shenwei	SW3	260+ + core China HPC
Phytium	FT-2000	256-core ARM

Source: Digitimes, May 2017

# Drone market taking off with promising demand from commercial sector

Staff reporter, Taipei

The market for UAVs (unmanned aerial vehicles), commonly known as drones, is growing quickly thanks to the diversification of products. Demand for consumer, entertainment, professional and commercial-use drones has been gradually emerging.

According to Gartner, almost three million personal and commercial drones will be produced in 2017, 39% more than in 2016. Global revenues for the market are expected to increase 34% to exceed US\$6 billion in 2017, and grow further to surpass US\$11.2 billion by 2020, said the market research firm.

Drones for commercial purpose have a high technology threshold due to the importance of security and efficiency. Commercial drones normally have a higher payload, longer flight times, and are equipped with a significant amount of sensors and flight controllers. And with higher prices, enterprise drones are shipped in a smaller volume than consumer drones.

The commercial drone market potential has actually drawn the attention of well-known companies, such as Amazon.

## Amazon UAV express

Amazon CEO Jeff Bezos in 2013 announced the company's plans to start offering deliveries using drones. As Amazon began to develop drones in the early stages of market development, the company has a lot of patents in the field. One of the patents allows drones to collect data through the sensors provided and receive data from other drones nearby. Data such as location, heading, altitude, etc. will enable drones to independently understand the surrounding

## Global drone shipments to reach 3 million units in 2017

	2016	2017
Personal	1,705,845	2,362,228
commercial	2,799,272	3,687,128
Total Revenue	4,505,117	6,049,356
Total Revenue Growth	35.5%	34.3%

Source: Gartner, 2017/5

environment, which help drones to develop coping strategies when facing danger.

Another recently published patent is related to composite wing UAV. Composite wing drones have both multi-axis and fixed-wing features. By utilizing the concept, Amazon's delivery drones combines vertical lift and horizontal flight capabilities. The advantage of vertical lift is to be able to take off and land without runways, while horizontal flight provides speed and efficiency, and a higher payload to facilitate the delivery of various equipment and supplies. Amazon has not published its model using this patented design, and its follow-up is expected.

Amazon's UAV technology continues to evolve, and its practical drone delivery trials have continued to progress. At the end of 2016, Amazon announced the company had successfully gone through a drone delivery trial in Cambridge, UK. Amazon's Prime Air completed the mission by delivering a TV streaming stick and bag of popcorn. During the trial, the drone independently detected the customer's delivery location using GPS with a flying height of 120 meters. The delivery took only 13 minutes. The trial started with only two customers, and the company said it is looking to work with dozens of customers over the next several months.

In addition, Amazon has R&D

centers in the US, Austria and Israel. The company expects to obtain regulatory support for its Prime Air delivery services in the future.

A few months after the success of Amazon's drone delivery trial in the UK, the company had another successful drone delivery trial in the US. In March 2017, Amazon's Prime Air completed its delivery trial during Amazon's MARS 2017 conference at a resort in Palm Springs, Calif. by delivering sunscreen.

## Intel drone

Apart from Amazon, many high-tech companies have tapped into the UAV field. According to the Taiwan government-sponsored National Applied Research Laboratories (NARL), the market for consumer drones has been led by China-based Dajiang Innovations. The dominance of Dajiang in the consumer segment has prompted other companies to switch their focus to commercial-use drones.

Intel is among the companies gearing up for the commercial drone market boom. At the 2016 INTERGEO drone conference in Hamburg, Germany the company announced its Falcon 8+ UAV for inspection, mapping and other industrial applications.

Intel in January 2016 acquired Germany-based drone developer and manufacturer Ascending Technologies. Intel combined Ascending's in-



▲ Intel Shooting Star drone light show display

Source: Intel

house developed sensing and evading algorithms with its UAV technology, and has successfully developed the Falcon 8+ model characterized by a V-shaped 8-axis redundant structure. The model weighs about six pounds, and can reach speeds of up to 35 miles per hour and fly for up to 26 minutes at a time on a redundant power pack.

Intel has also acquired German drone software startup MAVinci. The acquisition enabled the company's successful development of the Intel Shooting Star designed specifically for light shows. The Intel Shooting Star drones are made with a styrofoam body and plastics with a weight of only 280g. The drones have built-in LED lights to create over four billion color combinations.

The Intel Shooting Star drone system combined with Intel's animation software automatically creates a light show with arranged flight paths. Control staff only needs a light show design to confirm the use of the number of drones and flight locations. The Intel Shooting Star drone system allows one pilot to control hundreds of drones using a laptop.

The most popular performance of

the Intel Shooting Star drone system was undoubtedly that during the Super Bowl LI Halftime show. When pop star Lady Gaga's performance began, 300 Intel Shooting Star drones lit up the sky in a choreographed aerial performance. The drones created a backdrop of colorful formations in the sky including twinkling stars that transformed into red and blue moving stars, before creating the American Flag. The Intel Shooting Star drones also formed the Pepsi and Intel logos in the sky.

Intel also holds the World Record for having "The Most UAVs Airborne Simultaneously" with 500 Intel Shooting Star drones lighting up the sky.

## Easing of laws

The commercial UAV market growth will depend on the progress of relevant laws and regulations. The US Federal Aviation Administration's (FAA) Part 107 regulations published in June 2016 is the new rules for small unmanned aircraft operations. It is generally believed that the clarification of rules related to the use of UAVs will bring new business opportunities to the US commercial UAV industry.

In the US, although new regulations relax UAV operator qualification and some norms, the regulations still require the operators to keep an unmanned aircraft within visual line of sight which is relatively unfavorable to the development of drone delivery services.

## Intense price competition

According to the US FAA, sales of unmanned aircraft systems (UAS) for commercial purposes are expected to grow from 600,000 in 2016 to 2.7 million by 2020, while small, hobbyist UAS purchases may grow to as many as 4.3 million from 1.9 million.

Market research firm Tractica in its research report forecast unit shipments of consumer drones will increase more than tenfold from 6.4 million in 2015 to 67.9 million by 2021. The market revenue growth will mostly come from shipment growth, however, due to falling ASPs for consumer drones.

According to Goldman Sachs estimates, the average unit price of consumer drones will be cut to less than US\$1,000, while the price of commercial UAVs will be between US\$30,000 and US\$80,000.

China-based Dajiang owns as high as 70% of the global consumer drone market. Taiwan drone players including Geosat, Uaver and Skytech Taiwan Electronics with their commercial drones are eyeing the market potential. In addition, as the UAV industry supply chain is similar to the consumer electronics sector, Taiwan-based chips and components suppliers have stepped into the UAV field. MediaTek, for example, has its Helio X20 chips incorporated into UAV designs. It is generally believed that UAVs will be another driver of Taiwan's electronic components industry growth.



## team+ enterprise collaboration solution connects worldwide businesses with Taiwan's first FIPS validated cryptographic technology

**Press release**

EVERY8D, invited by the Ministry of Economic Affairs (MOEA), is presenting "team+" – a communication and collaboration platform providing enterprise private cloud and instant messaging functions – at Computex 2017.

This year's InnoVEX exhibit features the APICTA pavilion and APEC pavilion organized by MOEA for the first time to host exhibits from 20 countries including the US, France and the Netherlands, for the purpose of matchmaking global high-tech industry resources and strengthening international communication.

The Taiwan-based team that developed team+, winner of the gold medal of APICTA Award and the APEC mobile commerce award, has been invited to



▲ Alex Kuo, founder and chairman, EVERY8D

present its innovative application – a smart mobile solution for enterprise collaboration. team+ has also announced its cryptographic technology has been validated to comply with Federal Information Processing Standard

(FIPS) 140-2 established by the National Institute of Standards and Technology (NIST) of the US. As Taiwan's first FIPS-compliant enterprise instant messaging platform, team+ shows the R&D capabilities of the Taiwan ICT

industry, the competitive edge over other Asian countries and the world-class soft power.

**InnoVEX highlights enterprise collaboration solutions amid the digital revolution**

With the first smartphone entering the market 25 years ago, revolutionary changes are happening across social and business communication. The digital revolution in business communication spreading from the Internet to mobile devices is attracting high-tech leaders including Microsoft, Google and Facebook to scramble for a share of the enterprise collaboration software market. Considering from both the supply side and demand side, business upgrade with the help from technology is definitely the way to go.

Alex Kuo, founder and

chairman, EVERY8D, pointed out only innovation will bring brand value. team+ is able to stand out from other products based on five core values: satisfying demanding security requirements by enterprise private cloud, open API integration, comprehensive and tailored services, customization enabled by internally-developed technologies and an R&D team of industry-leading scale. These are what differentiate team+ from the competition and give it an edge.

Kuo emphasized MOEA's invitation for team+ to be exhibited at InnoVEX marks an important milestone for team+ in the expansion into Asian Pacific markets. There is a lot more work ahead. In addition to securing its leading position in Taiwan, the next step will be to introduce innovative applications of team+ to international markets through strategic alliances.

## LiteMAX showcases new total solutions for transportation, digital signage, gaming, industrial applications

**Press release**

LiteMAX Electronics, a supplier of intelligent vertical market platforms for industrial displays and computing systems, has launched the newest solutions for multi-industrial applications at the Computex Taipei 2017 (J1025A, 1F, Nangang Exhibition Hall). Almost 100 new products including industrial display and computing solution are available to meet demands from different industries.

For industrial computing systems, LiteMAX R&D team will prepare full series of motherboards, box PC and panel

PC solution. From low power consumption to high efficiency applications, LiteMAX can provide all kinds of sizes of motherboards (2.5-inch, 3.5-inch, Mini-ITX... etc), fanless embedded computer series (box PCs from palm size to rich I/O), and modular panel PCs mixed with LiteMAX high brightness LCD (10.4-inch to 21-inch, brightness from 250 nits to 1600 nits).

For industrial displays, LiteMAX showcases brand new passenger information system solution for transportation: the V-shape, double-side, waterproof and high brightness LCD hanging on the roof. Also, a 73-inch ultra wide

resizing LCD display (aspect ratio to 16:1) is mounted on the wall.

For digital signage, LiteMAX provides a full range of LCD displays from 32-inch to 75-inch, high brightness (up to 3,000 nits), and high resolution outdoor ready LCD solutions at the booth. Moreover, all digital signage solutions come with blackening defect free technology (Hi-Tni 110 degrees C) for outdoor applications. For rugged environment, LiteMAX displays five new rugged LCD panel from 7 inch to 24 inch, with high brightness, wide temperature and wide viewing angles.

"This year is really amazing!



▲ LiteMAX Double-Side and V-shape Passenger Information System first released at Computex 2017

LiteMAX has won over 10 awards so far," said David King, President of LiteMAX. "From Taiwan Excellence to for our product, our company was honored as Potential Taiwan Mittelstand in this April,

you can see LiteMAX has achieved more and more milestones in this year. We are confident our new products and solutions will attract more customers at this Computex tradeshow."



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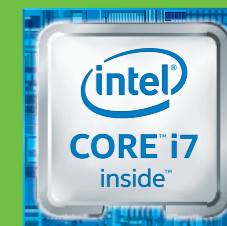
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DIGITIMES Research: Special Report, 2017

# Taiwan server shipment forecast and industry analysis, 2017

## Introduction

According to surveys and analyses conducted by Digitimes Research, revenues generated from sales of server motherboards, servers, storage systems and related network system equipment by Taiwan-based vendors rose 4.8% on year to reach NT\$558.5 billion (US\$18.61 billion) in 2016 and the amount is estimated to grow another 5.9% on year in 2017 thanks to strong demand for cloud computing-related applications helping overall server shipments grow. The growth benefited partly from some vendors' increased shipments for rack/cabinet servers.

Worldwide server shipments grew 5.1% on year to reach 11.51 million units (based on motherboard volume) in 2016. Datacenter server procurement will continue growing in 2017 because of increasing demand

for cloud computing applications, but shipments from traditional server brands will continue to decline, causing overall worldwide shipments to grow slightly by 3.7% from 2016 to arrive at 11.97 million units in 2017.

However, the shipment volume in 2018 is expected to grow 7% on year because Intel Purley-based servers will begin mass shipments starting in the 2018-2019 timeframe.

As for Taiwan-based players, their combined server shipments surpassed 10 million units in 2016 and were up 4.9% on year. In 2017, volumes will continue to enjoy growth between 4-5% with Wistron (Wiwynn plus Wistron) becoming the largest server motherboard player in Taiwan, surpassing last year's top player Inventec.

## Taiwan server industry

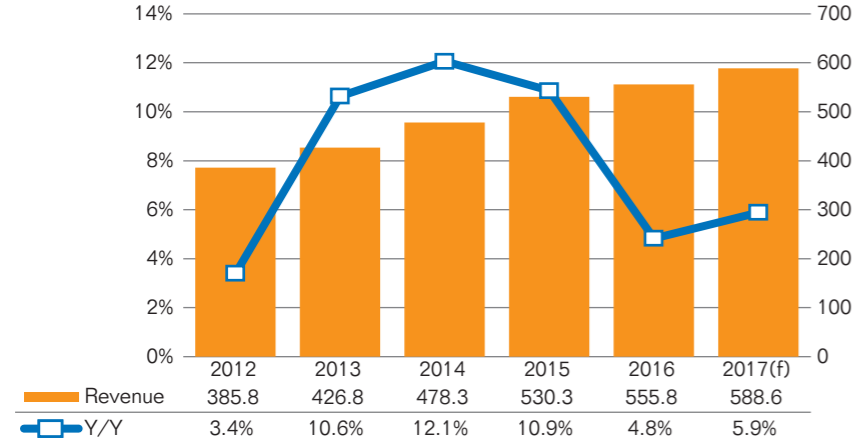
Taiwan's server revenues increased 4.8% on year in 2016, reaching NT\$555.8 billion because of increased server demand worldwide, while some vendors such as Quanta saw increased orders for cabinet/rack servers. However, the on-year growth was much weaker than that seen in the previous three years.

Revenues are generated from sales of server motherboards, servers, storage systems, switches and related network system equipment. So

while Wistron will be the top server motherboard maker in 2017, the maker will be ranked fourth in terms of overall server-related revenues for the year.

In 2017, Taiwan-based vendors' server related revenues are expected to enjoy a 5.9% on-year increase to total NT\$588.6 billion. Demand from datacenter clients including Amazon, Google, Facebook and Microsoft, is expected to rise further in 2017.

## Taiwan server maker revenues, 2012-2017 (NTsb)



Notes: 1. Firms include Inventec, Foxconn, Quanta, Wistron, Mitac, Gigabyte, USI, Pegatron, and Compal. 2. Revenues include server motherboard, assembly, storage device, and related system network equipment sales. Source: Digitimes Research, May 2017

## Taiwan makers

Inventec's revenues from server-related products exceeded those of Foxconn in 2016, helping Inventec become the largest server player in terms of revenues in Taiwan. However, Inventec only led by a small NT\$1.7 billion margin.

Inventec's stable orders from Hewlett-Packard (HP), Dell and clients from the datacenter industry were the player's biggest advantage in surpassing Foxconn.

Quanta Computer and Inventec both achieved nearly 15% on-year growth in their 2016 revenues, increases that were higher than those from the rest of their competitors. Both Quanta and Inventec had orders from first-tier datacenter players and had a major portion of their shipments being cabinet/rack server products, which contribute higher revenues than standard server motherboards.

Inventec will remain the largest

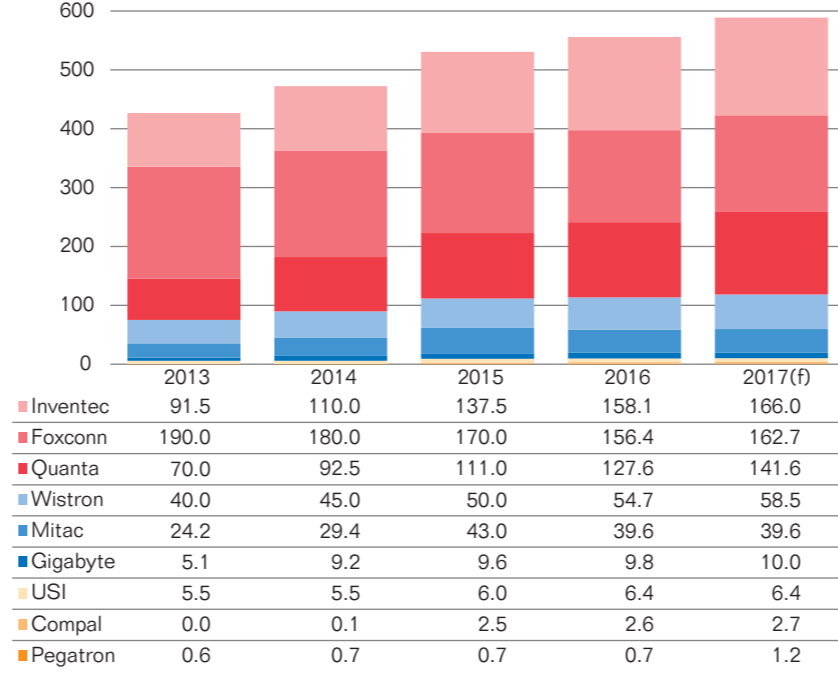
players in 2017, while Quanta will be ranked third, but Quanta will narrow its gap with the second-largest player Foxconn.

In terms of individual vendors' shares in the total revenues generated by Taiwan-based vendors' server related business, Inventec's share

is trending up year after year while Foxconn's share is trending down. The two's shares became comparable in 2016 with both being around 28%.

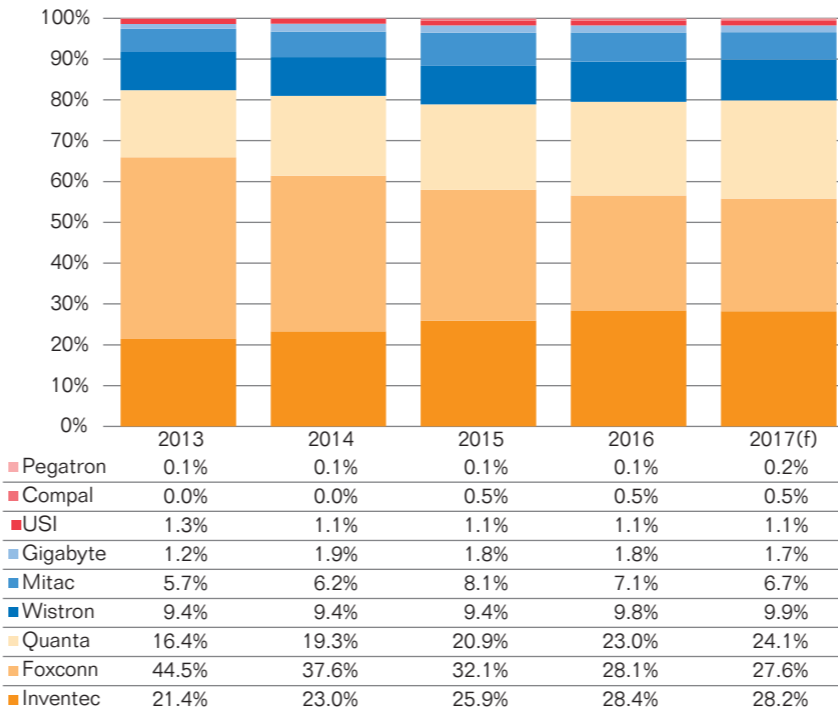
Quanta's share is also edging up year after year. The percentage was 23% in 2016 and will rise to 24.1% in 2017.

## Taiwan server revenues by maker, 2013-2017 (NTsb)



Note: Revenues include server motherboard, assembly, storage device, and related system network equipment sales. Source: Digitimes Research, May 2017

## Taiwan server revenue share by maker, 2013-2017



Note: Revenues include server motherboard, assembly, storage device, and related system network equipment sales. Source: Digitimes Research, May 2017

## Global server shipments

According to Digitimes Research, total global server shipments totaled 11.55 million units in 2016, up 5.1% on year. The growth was contributed mainly by datacenter servers' shipments, which rose 22% from a year ago, while traditional brand server shipments remained flat from 2015.

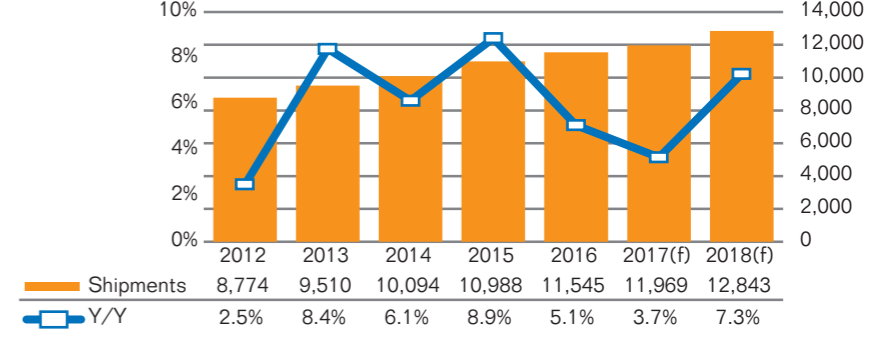
In 2017, global server shipments are expected to further increase by 3.7% to reach 11.97 million units and the increase in datacenter server demand will remain the main growth

driver.

With Intel delaying the releases of its Purley-based server platform to August-September, servers using the new processors will not enter mass shipments until the fourth quarter and the initial volume will also be limited.

Large-quantity shipments of Purley platform-based servers are expected to occur in 2018, which can spur 2018 server shipments to grow more than 7%. The market can expect to see 30%-40% of existing products replaced by Purley platforms in 2018.

## Global server shipments, 2012-2018 (k units)



Note: Shipment figures based on motherboard shipments. Source: Digitimes Research, May 2017

## Server shipments by geographic region

Server shipments from China-based brand vendors are expected to rise on year in 2017, but Taiwan makers' white-box datacenter server shipments will see an even larger increase due to clients' strong demand.

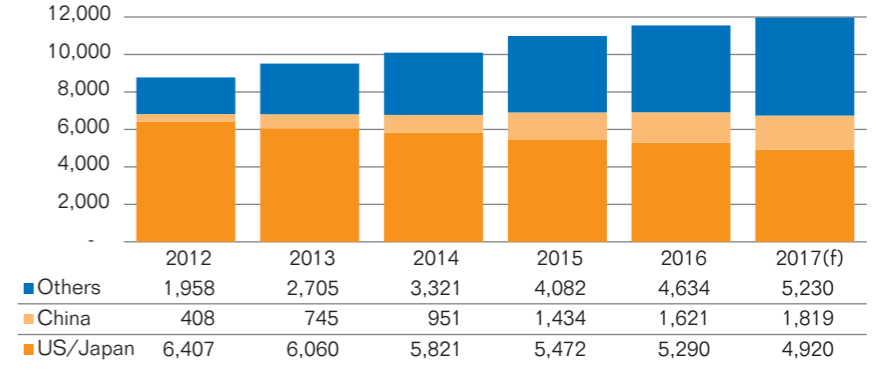
The shipment share of China-based server brands is expected to increase to 15.2% in 2017, up from 14% in 2016, while the share for US/Japan-based server brands will slide from 45.8% to 41.1%. The share of brands from the Other region can be expected to climb from 40.1% to 43.7%.

In 2016, the shipment share of China-based server brands was up 1pp on year, while US/Japan-based server brands saw their percentage drop 4pp while the Other region was up 3pp.

The four cloud leaders - Facebook, Google, Amazon and Microsoft, each has demand of about 400,000-800,000 servers every year, with an average annual growth of around 40%.

Major Taiwan-based suppliers include Quanta Computer, Inventec and Wistron (Wiwynn).

## Global server shipments by vendor location, 2012-2017 (k units)



Notes: 1. US- and Japan-based brands include HP, Dell, IBM, Fujitsu, Cisco, and Oracle; China-based brands include Huawei, Inspur, Lenovo, and Sugon. 2. Shipment figures based on motherboard shipments. 3. Starting 2015, IBM figures are included in Lenovo's volume (China). Source: Digitimes Research, May 2017

## Server vendor brands

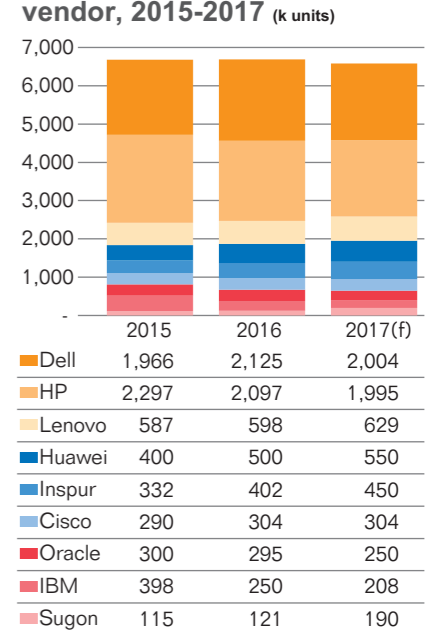
Server shipments by HP and Dell are estimated to each decrease by 4-6% in 2017 as some of their clients have decided to expand their direct orders with Taiwan ODMs.

The four cloud leaders - Facebook, Google, Amazon and Microsoft - will continue to have strong demand for servers in 2017, and they are fond of placing orders with Taiwan ODMs for their white-box models, which relatively narrowed down the difference in orders given by traditional server vendors.

Lenovo, Huawei, Inspur and Sugon will see rising shipments in 2017 due to China government's policies of pushing adoption of local-made servers.

In 2016, Dell's server shipments surpassed those of HP by a small margin as HP's software/hardware-integrated solutions were not competitive enough against Dell,

## Global server shipments by vendor, 2015-2017 (k units)



Note: Starting 2015, IBM figures are included in Lenovo's volume. Source: Digitimes Research, May 2017

which has advantages in both hardware and software development.

Continued on page 8...

# Extensive R&D capabilities enable APD Group to create a strong presence in the IT power supply market

## Sponsored content

Since its establishment in 1994, APD Group has been cultivating the power supply market and expanding into different sectors for over two decades. APD Group now comprises three business units—the power system business, renewable energy business and lighting business, fully committed toward the goal of becoming a leader in the fields of power products, electronics and renewable energy.

To mark its commitment and the start of a new phase, APD Group recently unveiled a whole new green energy corporate identity logo. With the launch of the brand new corporate image, APD Group makes its debut at this year's COMPUTEX Taipei, showcasing four main types of power products from its power system business, respectively for IT, network communication, Medical, and industrial applications and particularly highlighting power supplies for IT products. "We

hope to establish closer and tighter collaborations with leading IT companies by leveraging our edge in manufacturing unique, slim, high-performing and custom-made products," indicated Chia-Ming Tsai, general manager, APD Group.

## Unrivalled design flexibility caters to customer needs

Based on the objective, APD Group will exhibit a series of desktop, wall-mounted and embedded power supplies for IT equipment. These products featuring ultra-slim, compact and colorful designs comply with safety regulations and EMC requirements in multiple countries around the world. They are suitable for a wide range of IT devices including printers, external storage devices, displays, TVs, notebook PCs, tablets, all-in-one PCs, mini PCs and Blu-ray & DVD players. "We are capable of providing a high level of custom design flexibility. Our wide-ranging product specs enable us to stand out from the competition,"

stressed Tsai.

APD Group's customization capabilities are founded on its persistence in accumulating independent R&D experiences. Tsai emphasized, "People and technologies are APD's most valuable assets, not capital." APD Group is reportedly among the few Taiwan-based power supply vendors still employing a sizable R&D team, its product researchers in China and Taiwan exceeding 200.

Devoting tremendous resources into product research over the years, APD's custom design capabilities are already well recognized by customers. It has successfully gained a significant market share in the network communication sector with its power supplies widely used in modems, routers, switches, IP phones, IP surveillance equipment, card readers, set-top boxes and other network communication devices.

## Strong network communication capabilities

## support the penetration into medical and industrial sectors

Leveraging its extensive experiences and competitive edge accumulated through the development in network communication, in addition to its much raved-about custom design flexibility, APD is performing brilliantly in medical and industrial sectors. Tsai pointed out, "Medical products are characterized by their diversity and stringent safety requirements, which are exactly where APD excels. In fact, APD has become one of the leading power supply providers for medical products."

In terms of its planning for the medical sector, APD obtained ISO13485 certification, a quality management system standard specifically for the medical devices industry. Each APD product is strictly ISO 13485 compliant including the design management, environment control, special procedure control,

# A leader in customized power design



▲ APD Group, a leader in customized power supply design

traceability, record archiving and regulation conformance. Furthermore, all APD power supplies for medical products are also IEC60601 compliant.

As to industrial applications, ranging from 10W to 500W power output and 90V to 264V input voltage, APD power supplies meet the safety regulations and EMC requirements in multiple countries around the world and therefore satisfy a variety of uses and global market needs. Tsai further commented, "APD

will devote additional efforts and resources into the development of DIN Rail UPS systems to respond to the growing demand by factory automation." APD's DIN Rail UPS systems can provide back-up power for PLC/IPC equipment when factory power supply becomes unstable or interrupted so as to help raise overall system reliability.

APD Group is at Booth J0303a, 1F, Nangang Exhibition Center. For more information, please visit APD website: <http://www.apd.com.tw/en>



# Aorus flexes gaming firepower at Computex 2017

**Press release**

Aorus, the emerging force of PC gaming hardware and gears powered by Gigabyte, is showcasing its latest product at Computex 2017. Taking the center stage is the Aorus 720-degree motion simulator located right in the heart of its Computex booth.

With the popularity received from the racing simulator from last year, Aorus takes VR back to Computex again to give visitors a taste of what the future of gaming is like. Visitors will have the rare opportunity to step inside this highly interactive racing cockpit and plunge right into the virtual realm developed by Aorus. Combining VR technology with the 720-degree simulator and the futuristic racing game Redout powered by the Aorus solution, it offers a fully immersive 5D VR experience.

**All gaming products under one roof**



▲ AORUS will highlight its innovation and determination in gaming at this year's COMPUTEX under the banner 'Team up. Fight on.'

A wide spectrum of gaming hardware from Aorus will team up for display on this year's Computex show floor in the TWTC Hall 1, Booth D0002. Aorus is set to highlight its latest development in gaming laptops, premiering the 17-inch top-of-the-line X9, as well as refined versions of existing models X5 and X7.

Aorus extends its gaming

frontier further with the new X299 Aorus Gaming Series motherboards. With support for digital LEDs, triple M.2s, and the just-released Intel Optane Technology, the X299 Aorus Gaming Series will serve as a new enthusiast platform. On the graphics end, Aorus will debut the GTX 1070 Gaming Box, a plug-and-play external graphics

enclosure with GTX 1070 graphics card embedded for transforming any Thunderbolt 3-enabled laptops into a gaming battle station. A full line of graphics cards powered by the latest GeForce and Radeon GPUs will be on display as well, featuring Gigabyte technologies for delivering both performance and user customization.

Aorus will also showcase

gaming peripherals for serious gaming needs, with highlight on the AK710 waterproof mechanical keyboard and mobile gaming ear buds Aorus E1.

**A journey into Aorus design**

In the meantime, Aorus will host an invite-only exhibition at the private VIP suite in Taipei 101 with a dedicated room showcasing the Aorus family and its design concept. The invited guests will be given insight into Aorus' laptop design, past, present and future. "We take great pride in ensuring both a high-end feel through top-of-the-line materials as well as a sober, stylish atypical-for-gaming type of look on the Aorus lineup of laptops.

I look forward to explaining our design philosophy and what goes into an Aorus product," commented Ray Ho, Head of Design at Aorus.

Gigabyte is at TWTC Hall 1, Booth D0002.

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# Ibase SI-623-N and UMT-7211 win Computex d&i awards 2017

**Press release**

Ibase Technology, a manufacturer of embedded systems and industrial panel PCs, has announced that its SI-623-N digital signage system and UMT-7211 medical panel PC have won the Computex d&i awards 2017 in the Systems + Mobile Communication category.

The Computex d&i Awards, organized by Taiwan External Trade and Development Council (TAITRA) and iF, The International Forum Design, is entering the 10th anniversary. This year, 96 participants from eight countries submitted 255 entries

to be evaluated by a jury and only 77 entries were selected as winners. "It's our honor to have two winning products this time, which is the third consecutive year for Ibase to win this prestigious d&i award. It demonstrates on the significant global stage our innovative capabilities with system designs," said James Wu, Ibase's president.

The latest 7th Gen Intel Core (formerly Kaby Lake) processor-based SI-623-N is a 3x 4K UHD digital signage player designed for digital menu board and multi-screen video wall applications. This fanless system features three independent HDMI outputs with



▲ IBASE booth K0508 at the 1F, Nangang Exhibition Hall 1 during COMPUTEX Taipei 2017

up to 4K (3840 x 2160) @60p and hardware EDID simulation function. Ibase is the first system

provider to integrate software EDID setting mode aside from manual control. The 6th Gen

Intel Core (formerly Skylake) processor-based UMT-7211 is a 21.5-inch versatile medical panel PC suitable for hospital patient infotainment systems in clinics and bedside or waiting areas to provide clinical data, medical records management or monitoring, and online medical information. This slender full-flat multi-touch fanless panel PC has IP65 and IP54 protection against particles and water, and capacitive control keypads for power and brightness/volume settings.

For more information, visit IBASE booth K0508 at the 1F, Nangang Exhibition Hall 1 during Computex Taipei 2017.

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...Continued from page 6

Taiwan server motherboard shipments

As for Taiwan's server industry, shipments from Taiwan makers will grow 4.8% on year to reach 10.8 million units (calculated based on motherboards), driven by expanding cloud demand.

Taiwan's share in worldwide server shipments are expected to rise back to above 90% in 2017 as Huawei, which manufactures all its servers in house, will see slower growth.

The share was only 89.5% in 2016 because of Huawei's strong on-year shipment growth performance of 25%, an equivalent to a shipment increase of around 500,000 units. Taiwan's server shipments were re-modified to 10.38 million in 2016 with a growth of 4.9% from 2015.

In terms of shipments by leading server players in Taiwan, the Wistron group, which consists of Wistron and subsidiary Wiwynn, will ship a total volume larger than Inventec's in 2017, making it the largest player in Taiwan.

The Wistron group's shipments are expected to enjoy growth of 12%, helping its shipments reach 2.65 million units in 2017. Inventec's

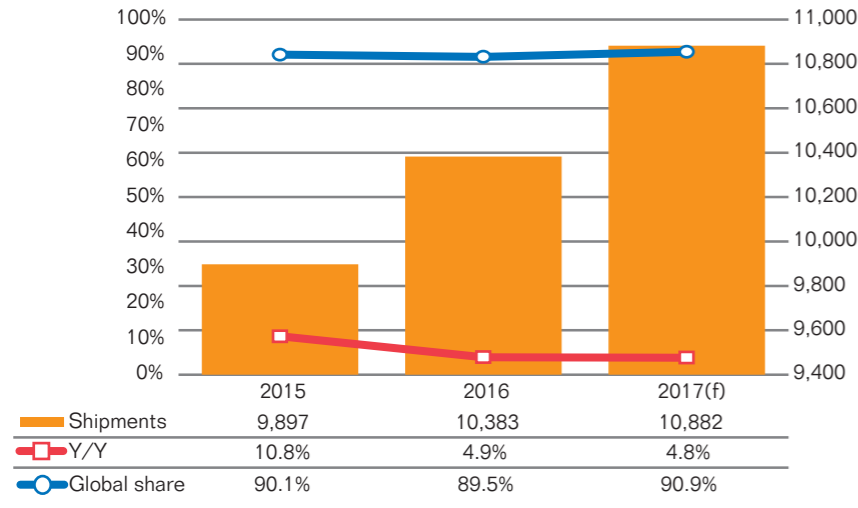
shipments however, will stay flat or drop slightly from a year ago and hit 2.4 million units.

Wistron is expected to enjoy shipment growth of around 10%, while Wiwynn will have growth of 28% in 2017. Wistron's growth will benefit from dramatically increased orders from China-based Inspur and Sugon as well as rising volumes from Super Micro. Wiwynn's growth will get a contribution mainly by Microsoft's orders, which will rise 35% from a year ago, while orders from smaller datacenter clients will also increase.

Although the Wistron group will see higher shipments than Inventec in 2017, Wistron's revenues from the server business will only be 40% of those of Inventec. This is because the Wistron group is mainly shipping motherboards, while Inventec have both orders for motherboards and rack servers.

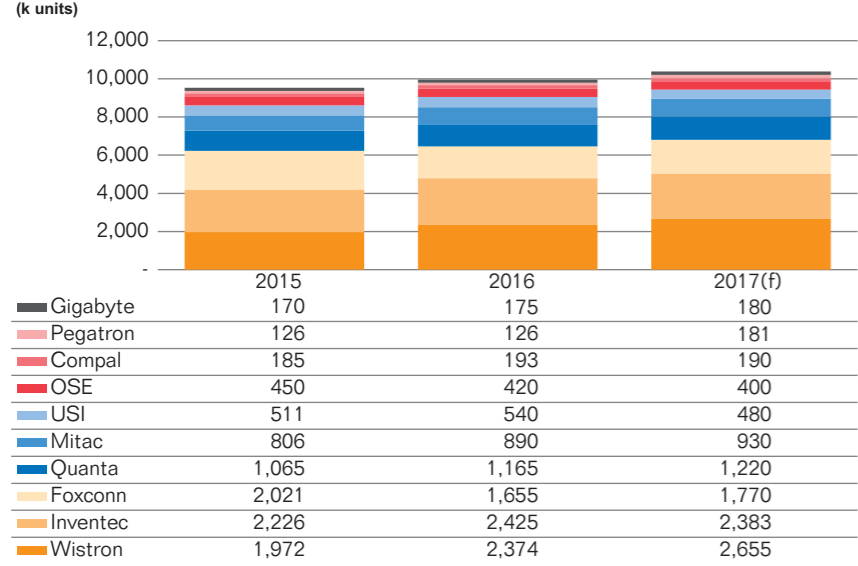
Taiwan's top-4 players will see their combined share in Taiwan's server shipments remain at around 62-63% from 2015-2017.

Taiwan server motherboard shipments, 2015-2017 (k units)



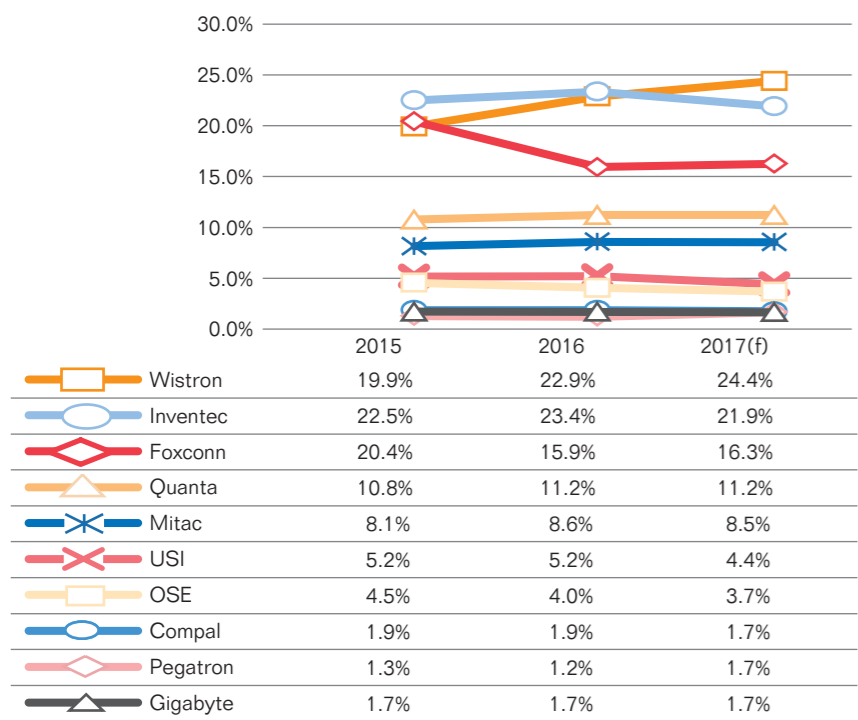
Notes: 1. Firms include Foxconn, Inventec, Quanta, Wistron, Mitac, Gigabyte, USI, Pegatron, and Compal. 2. Shipment figures based on motherboard shipments. Source: Digitimes Research, May 2017

Server motherboard shipments by Taiwan maker, 2015-2017 (k units)



Notes: 1. Above figures based on motherboard shipments; 2. Starting 2015, Wiwynn's shipments are included in Wistron's volume. Source: Digitimes Research, May 2017

Server motherboard shipment share by Taiwan maker, 2015-2017



Source: Digitimes Research, May 2017

Taiwan ODM customer partnerships

The percentage of OEM manufacturing done by Inventec for HP increased from 45.7% in 2015 to 50.5% in 2016 due to orders that were shifted from Foxconn.

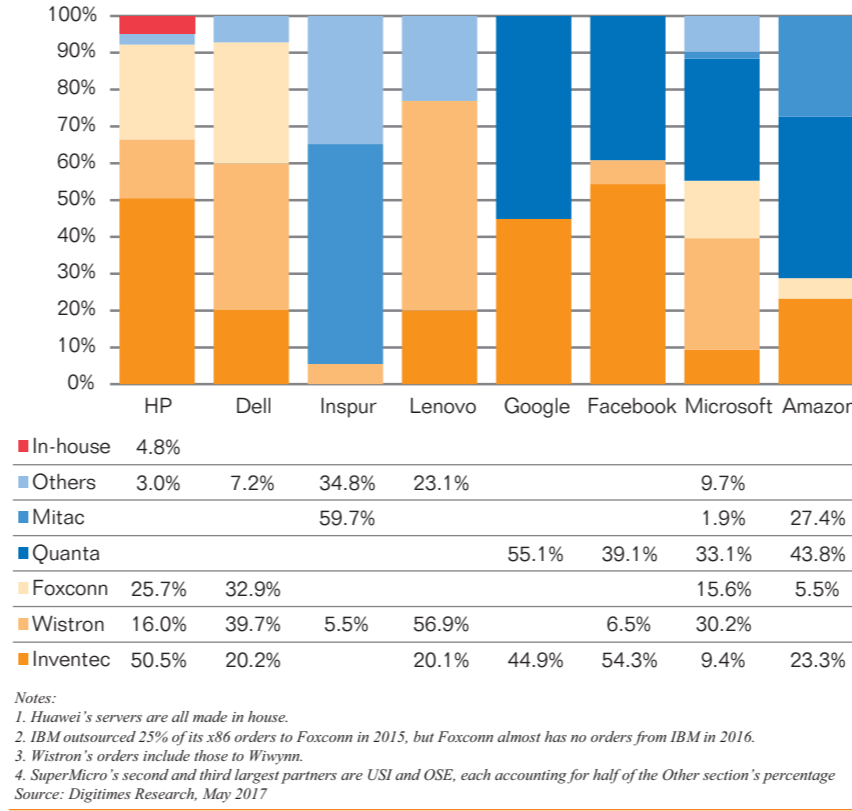
This was because HP had weak sales for servers that were outsourced to Foxconn since Foxconn's quotes were higher than its competitors, while the performance of the related servers did not have a similar performance premium. HP's server orders to Inventec and Wistron will remain stable in 2017, but the US-based vendor will continue to cut its

orders to Foxconn.

Dell shifted some of its orders to Wistron, resulting in an increase of Wistron's share from 25% in 2015 to 40% in 2016 and a decrease of Foxconn's share from 43% to 33%.

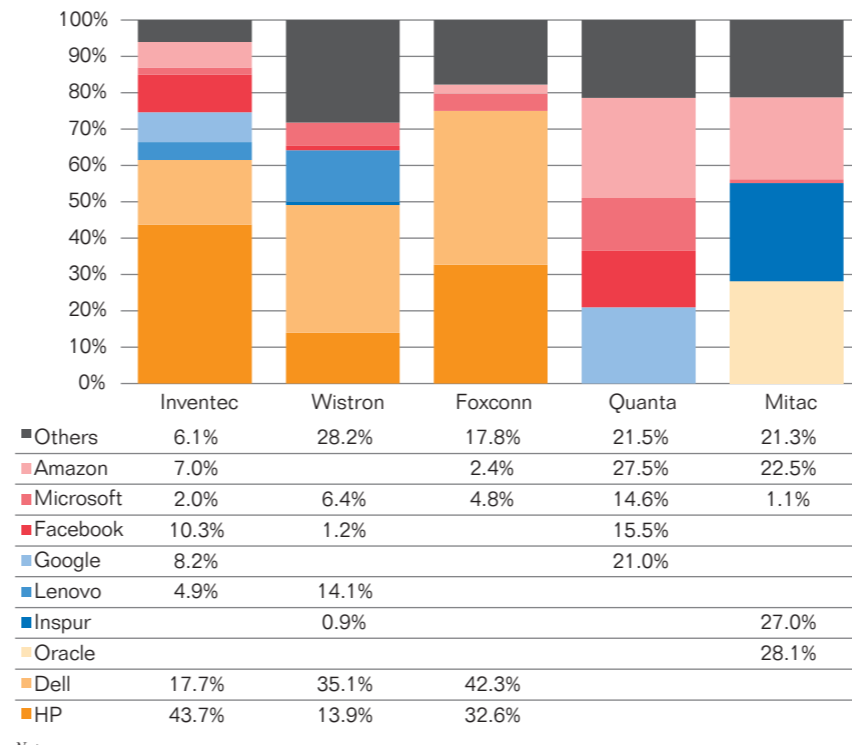
HP, Dell and Amazon all cut their server orders to Foxconn and Microsoft was the only client still placed increased orders. Foxconn's share in Microsoft's server shipments rose dramatically from 3% in 2015 to 15.6% in 2016 and this was likely because Foxconn had offered low quote for its servers.

Brand vendors' order proportions, 2016



Notes: 1. Huawei's servers are all made in house. 2. IBM outsourced 25% of its x86 orders to Foxconn in 2015, but Foxconn almost has no orders from IBM in 2016. 3. Wistron's orders include those to Wiwynn. 4. SuperMicro's second and third largest partners are USI and OSE, each accounting for half of the Other section's percentage. Source: Digitimes Research, May 2017

Shipment proportion of major server makers to clients, 2016



Notes: 1. Wistron's shipments to Lenovo are all IBM's x86 servers. 2. Wistron's shipments include those of Wiwynn. Source: Digitimes Research, May 2017

Quanta's share of Microsoft's shipments decreased from 48% in 2015 to 33% in 2016. In 2017, Microsoft will continue to shift its orders to Wiwynn and Foxconn in 2017, while Quanta has not received any new server orders from Microsoft for 2017.

Google continues to distribute its orders between Quanta and Inventec with a ratio of 5:5 in 2016, but the situation is likely to change with Quanta Computer holding a 70% share in 2017.

Amazon placed increased orders with Mitac in 2016, raising the share from 14% in 2015 to 27.4% and the percentage may grow even further to 40% in 2017.

Orders from HP previously accounted for 47% of Inventec's overall shipments in 2015, but the percentage was only 44% in 2016. This is because Inventec had increased orders from Google, Facebook and Amazon, but the volume from HP was only flat from a year ago.

In 2017, Inventec's orders from HP and Dell will both grow around 5%, but volumes from most other clients will slump, causing HP's share of Inventec shipments to return to 47%.

The Wistron group saw players including Dell, Sugon and Microsoft, raise their orders for 2016. Inspur and Facebook also became clients of the

Wistron group in 2016.

Wistron group's orders from Dell rose significantly by 70% on year in 2016, helping Dell to account for more than one third of the Wistron's 2016 shipments.

Microsoft and Facebook's orders are handled by Wiwynn, but their contributions in Wistron's overall server shipments were still rather small. In 2017, Microsoft's share will rise to 7.9%.

Quanta had rising orders from Google and Amazon in 2016, which relatively increased the ODM's dependence on the two clients with each having over 20% shares. Google's share was up from 16.9% in 2015 to 21% in 2016 and Amazon went from 21.6% to 27.5%.

With Google's orders continuing to increase, Google's share of Quanta shipments will reach 32.8% in 2017, while Amazon's share will stay at around the same level.

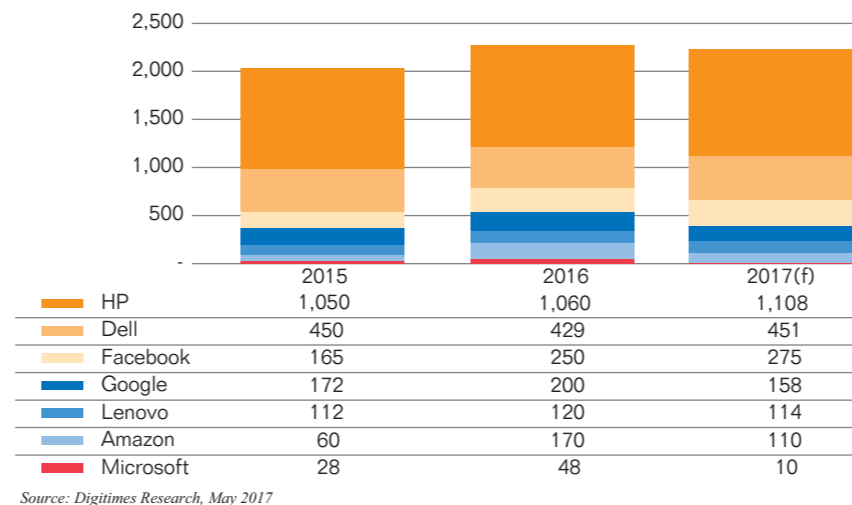
Mitac's shipments to Amazon and Inspur were up dramatically in 2016 and thus boosted the two firms' shares of Mitac shipment volume. Amazon's share rose from 11% in 2015 to 22% and is expected to rise further to 38% in 2017.

Inspur's share of Mitac shipments also increased from 25% in 2015 to 27% in 2016, but the percentage will only be 22% in 2017 because of decreased orders.

Taiwan server maker analysis

**Inventec** up 15% on year, further expanding to account for nearly 37% of its total revenues. Server business is

Inventec server motherboard shipments by customer, 2015-2016 (k units)



Source: Digitimes Research, May 2017

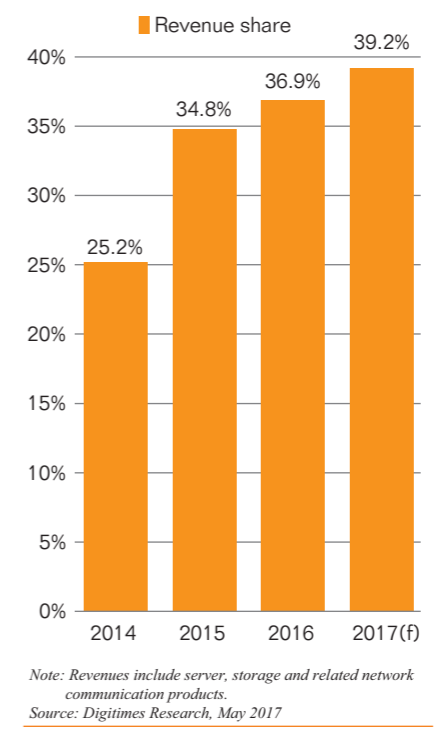
the second largest of Inventec's undertakings, second to its PC business (accounting for about 50% of its revenues).

Inventec's server motherboard shipments grew 8.9% in 2016, reaching 2.43 million units.

Inventec's server related revenues are expected to further ramp by 1-5% in 2017, pushing the share level to slightly over 39%.

Although Inventec expects its server shipments to achieve 20% growth in 2017, Digitimes Research is rather pessimistic about the forecast. Despite growth of around 5% in HP and Dell's orders, the players' orders from most of its other clients are

Server revenues as share of total Inventec revenues, 2014-2017



Note: Revenues include server, storage and related network communication products. Source: Digitimes Research, May 2017

Wistron

Wistron group's server-related revenues are expected to rise 7% on year in 2017 to account for nearly 9% of the company's overall amount.

PCs and monitors together will contribute 60% of the company's revenues. Mobile devices such as handsets will be 16% and LCD TVs 6%.

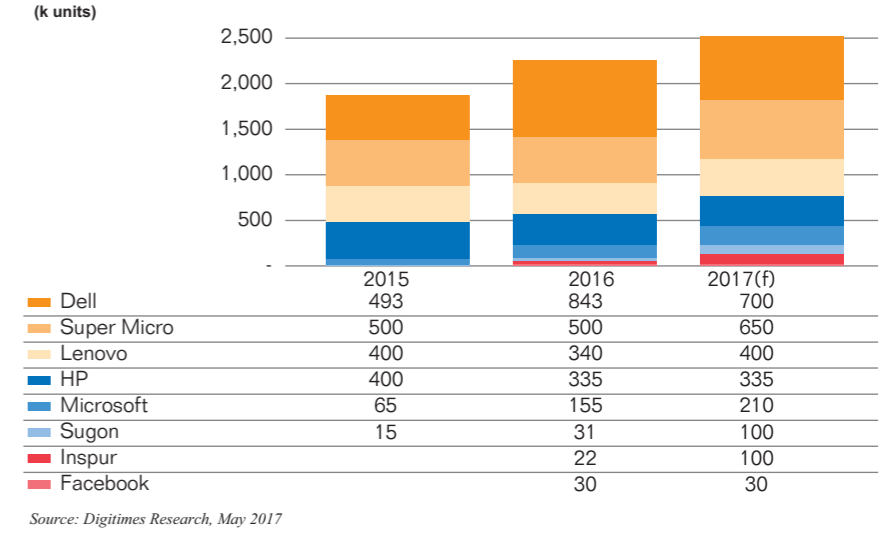
In 2016, the company's revenues from the server business were NT\$57.7 billion, up 9% on year. As Wistron's shipments concentrate on motherboards, the 12% annual increase in shipments in 2016 only reflected a 9% growth in revenues unlike companies that ship a larger share of cabinet/rack mounted servers, such as Quanta Computer and Inventec.

Wistron group's server shipments are estimated to grow 11.8% on year to boost the volume to over 2.6 million units. The company will also surpass Inventec to become the largest server player in Taiwan.

The Wistron group will see decreased orders from Dell, but increased demand from Super Micro and China-based vendors. Wiwynn is also expected to make strong shipment contribution in 2017.

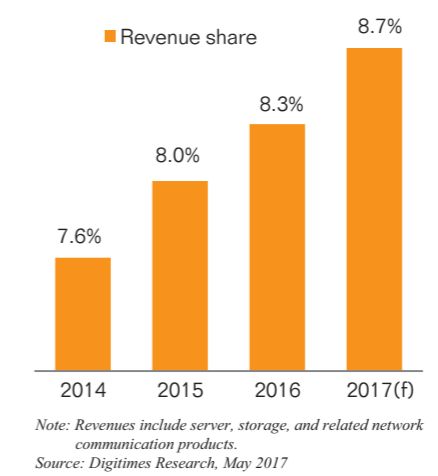
The shipment volume in 2016

Wistron server motherboard shipments by customer 2015-2017 (k units)



Source: Digitimes Research, May 2017

Server revenues as share of total Wistron revenues, 2014-2017



Note: Revenues include server, storage, and related network communication products. Source: Digitimes Research, May 2017

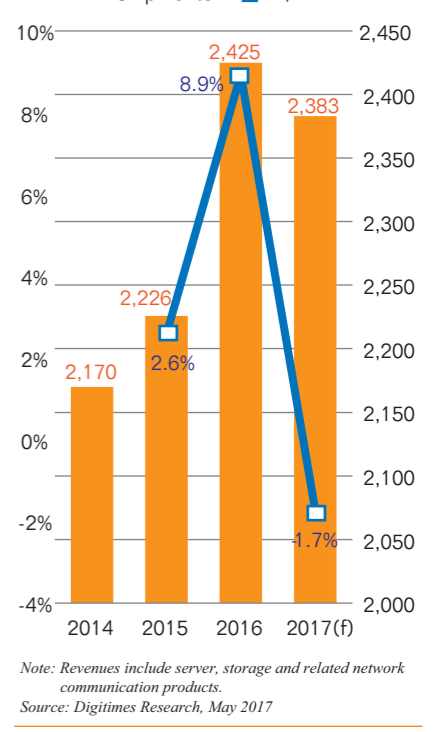
likely to drop.

**2017** In 2017, Inventec will see HP, Dell and Facebook raising their orders, but other clients are likely to cut theirs.

Orders from Google are mostly being shifted to Quanta. Microsoft's orders are mostly taken by Wiwynn and Foxconn, while Amazon's orders have mostly been given to Mitac (40%).

Among Inventec's clients, Amazon, Facebook, Google and Microsoft all dramatically increased their orders on year in 2016 because of strong cloud demand. In addition to Inventec, Quanta, Wistron/Wiwynn and Mitac all benefited.

Inventec server motherboard shipments, 2014-2017 (k units)



Note: Revenues include server, storage and related network communication products. Source: Digitimes Research, May 2017

was modified to 2.37 million units, growing 12% on year because of Dell significantly raising its orders to Wistron, while Wiwynn also enjoyed rising orders from Microsoft.

**2017** The Wistron group will see its shipments to Dell drop from the previous year in 2017, but shipments to HP will stay flat. Most of Wistron group's other clients have placed increased orders for 2017.

The second-largest client Super Micro increases its orders by 30% on year in 2017 as its products are seeing strong sales.

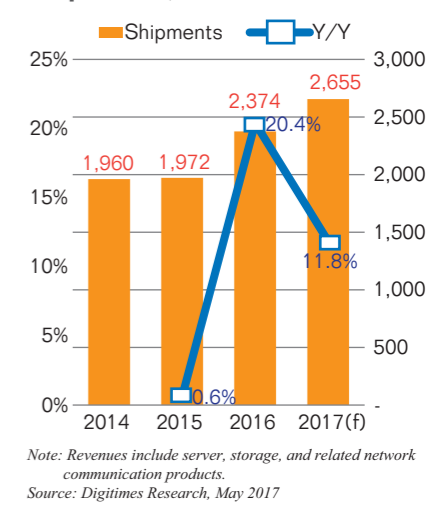
China-based Sugon and Inspur both raised their orders by over 70,000 units from 2016 in 2017.

Microsoft's orders are also expected to increase to 210,000 units in 2017.

Wistron group's server shipments to Dell were up 70.9% on year in 2016 and most of the increased volume was low-end models shifted from Foxconn. Wiwynn's shipments to Microsoft also grew significantly to 150,000 units in 2016. Inspur started placing orders with Wistron in 2016 and shipments were only 22,000 units.

Continued on page 9...

Wistron server motherboard shipments, 2014-2017 (k units)



Note: Revenues include server, storage, and related network communication products. Source: Digitimes Research, May 2017



...Continued from page 8

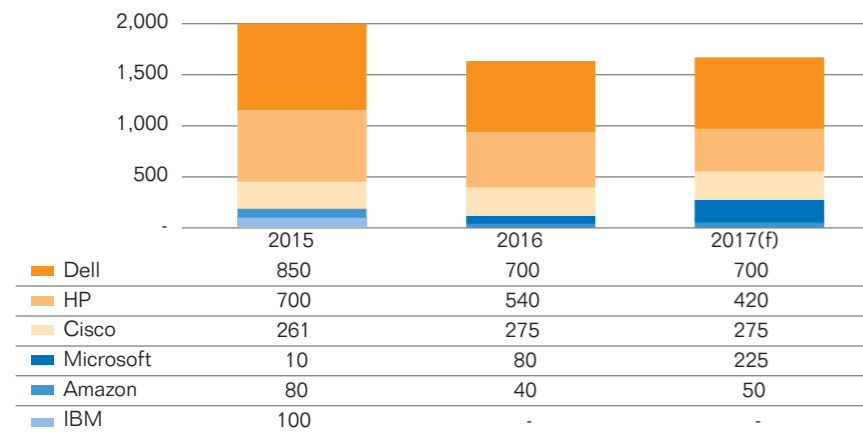
**Foxconn**

It is estimated that Foxconn will generate revenues of NT\$163 billion from its server business in 2017, growing around 4% on year and accounting for more than 3.5% of its total revenues.

Foxconn's server shipments are expected to achieve an increase of 6% in 2017 to 1.77 million units. Despite HP having been cutting its orders to Foxconn, the Taiwan-based player will still benefit from strongly increased orders from Microsoft.

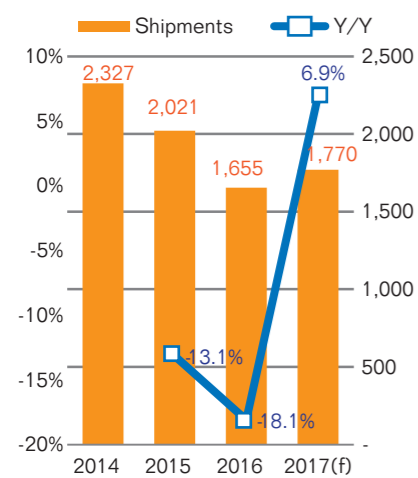
Foxconn's server shipments were 1.65 million units in 2016, dropping 18% from 2015 as its orders from Dell were partly taken by Wistron, while IBM sold its x86 server product line to Lenovo and discontinued the partnership.

**Foxconn server motherboard shipments by customer, 2015-2017 (k units)**



Source: Digitimes Research, May 2017

**Foxconn server shipments, 2014-2017 (k units)**



Note: Revenues include server, storage, and related network communication products. Source: Digitimes Research, May 2017

**2017**

Foxconn's orders from Microsoft will grow 181% on year in 2017, while Amazon is also expected to place extra orders with the Taiwan-based player.

After suffering from a decline in Dell's orders in 2016, Foxconn is expected to maintain the same volume of orders for 2017.

HP decreased its server orders to Foxconn because of the server products' weak price/performance ratio. With Purley-based servers unlikely to become available in the market until the fourth quarter, the new platform is unlikely to have much contribution in boosting demand and thus HP will continue to cut its orders with Foxconn.

**Quanta**

Quanta Computer's server related revenues will continue with its growth momentum, up 11% to reach NT\$141.6 billion in 2017, accounting for 17% of its total revenues.

This is in part because server shipments are rising and also because its notebook business is declining.

Quanta Computer will ship a total of 1.22 million servers in 2017, up 4.7% on year. So far, Microsoft still has not yet outsourced any orders for new servers to Quanta, but Google

and Facebook will both placed increased orders.

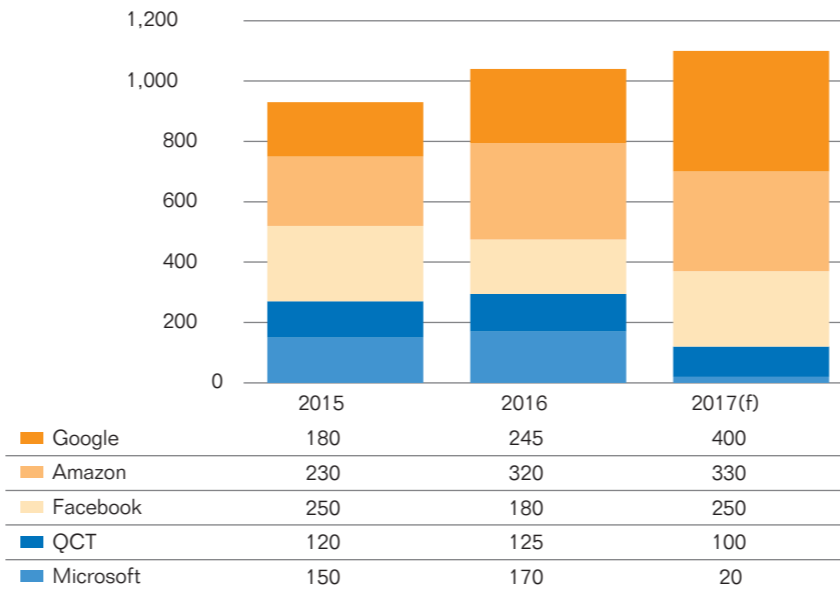
**2017**

Quanta will receive a majority of Google's 2017 orders. Quanta and Inventec's order ratio from Google will reach 7:3 (Quanta: Inventec).

Increased demand for servers from Amazon and Facebook also relatively raised Quanta's orders from them.

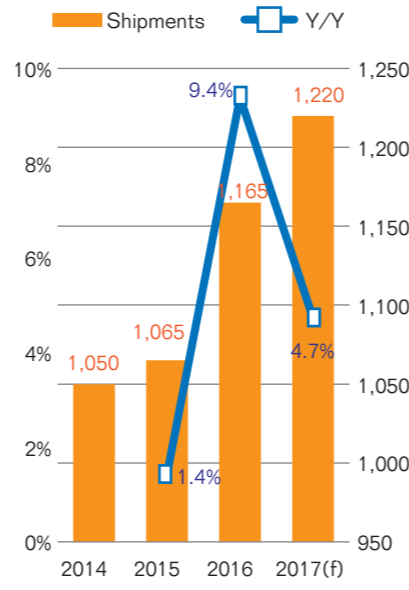
The company's orders from Microsoft were taken by Wiyynn and Foxconn.

**Quanta server motherboard shipments by customer, 2015-2017 (k units)**



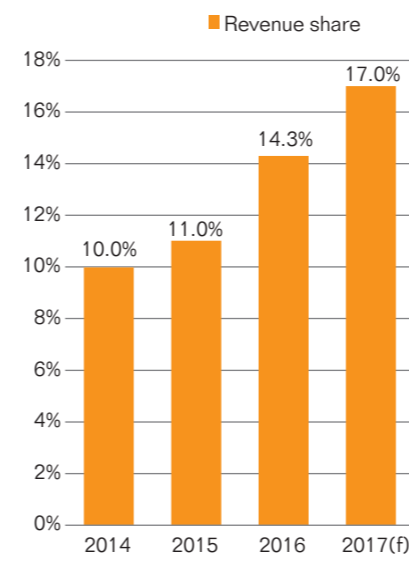
Source: Digitimes Research, May 2017

**Quanta server shipments, 2014-2017 (k units)**



Note: Revenues include server, storage, and related network communication products. Source: Digitimes Research, May 2017

**Server revenues as share of total Quanta revenues, 2014-2017**



Note: Revenues include server, storage, and related network communication products. Source: Digitimes Research, May 2017

**Mitac**

After suffering from an 8% on-year decline in 2016 revenues, Mitac will make total revenues of NT\$39.6 billion from its server related business in 2017, a flat or slight decline from a year earlier, accounting for 83% of its total revenues.

Mitac's shipments are expected to rise 4.5% on year to reach 930,000 units in 2017, despite the fact that its revenues will have no growth. This is because Mitac's shipments consist mostly of motherboards.

Mitac is adding shipments of high performance products with higher unit prices to data centers in the US so its profits are actually up despite the decline in revenues in 2017.

**2017**

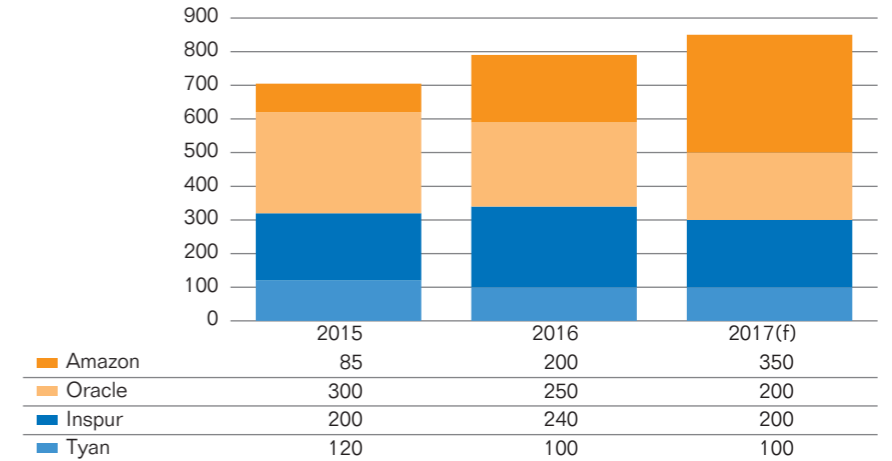
Mitac's 2017 server shipments to Amazon will grow dramatically by 75% on year in 2017 and the volume will also reach 350,000 units, with the maker's total surpassing Quanta by a small margin to become the largest server supplier for Amazon.

It is known that Amazon tends to switch its supplier proportions every so often in order to maintain its relationships with server manufacturing partners

After purchasing 20% more servers in 2016, Inspur's order volume for 2017 will return to the level of 2015.

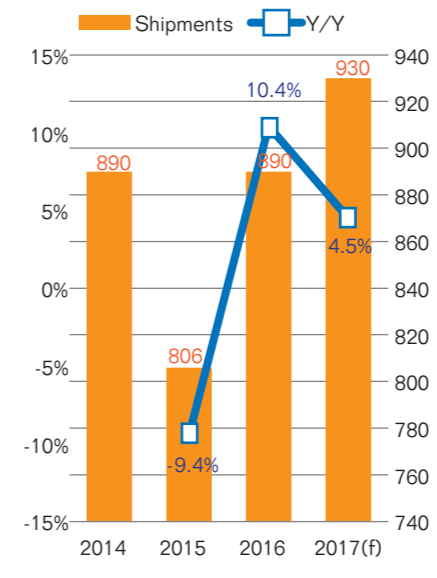
Mitac's own-brand shipments (Tyan) will stay flat from a year ago in 2017.

**Mitac server motherboard shipments by customer, 2015-2017 (k units)**



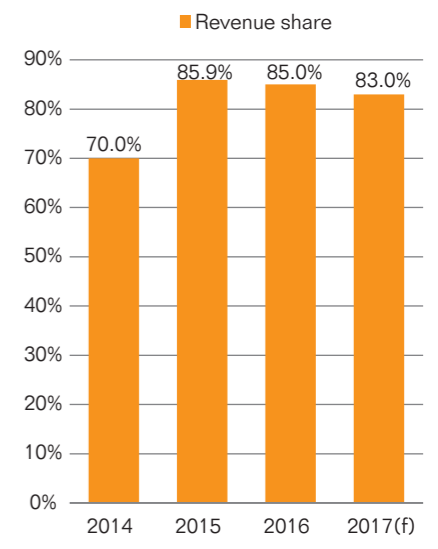
Source: Digitimes Research, May 2017

**Mitac server shipments, 2014-2017 (k units)**



Note: Revenues include server, storage, and related network communication products. Source: Digitimes Research, May 2017

**Server revenues as share of total Mitac revenues, 2014-2017**



Note: Revenues include server, storage, and related network communication products. Source: Digitimes Research, May 2017



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- TAIWAN DISPLAY SYSTEM TRACKER

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 Phone: +886-2-87128866  
 Fax: +886-2-87123366



# Gearing up for generational shift in embedded storage

## Press release

The new industrial-grade PCIe SSD and high-security AES SD card series are two of the innovative products that Innodisk will present at this year's Computex in Taipei. In addition, the new InnoREC and Boot-up drive series will focus on surveillance and server solutions respectively. These innovations along with the new Innodisk Cloud Administration Platform (iCAP) and DDR4 2666 and Very Low-Profile DRAM modules make up the core of Innodisk's next step towards software and hardware integration.

## The latest innovations

By combining the NVMe protocol and 3D NAND flash technology, the new PCIe M.2 SSD sports significantly increased performance and capacity. The compact M.2 form factor which is pushed by Intel allows for an easy integration into most systems. By also utilizing Marvell controllers, this module will help usher in the next generation of embedded and industrial storage. The 3D NAND technology has also been incorporated into many of Innodisk's SATA form factor series.

The new AES SD card series

integrates the US government standard 256-bit AES encryption, making it one of the most secure SD products on the market. The encryption key is randomly generated and is unknown to both the user and manufacturer. The encryption process is also fully hardware-based and does not impact system operations when encrypting or decrypting data.

As the number of interconnected devices keep growing under IoT, management is becoming increasingly

challenging. To address this Innodisk is launching the cloud management software iCAP to help system operators monitor and remotely control all their cloud-connected devices.

## Automation

Innodisk can offer a wide variety of customizable solutions to meet the demands of Industry 4.0. The 3ME4 SSD, 2666MT/s DDR4 SODIMM, as well as the EMUI IO expansion card and the new iCAP cloud management

software make up the individual pieces of the comprehensive Innodisk solution. With all these pieces in place, the user can easily monitor and control each connected device, making for a true smart-factory solution.

## Server

The new SATADOM Server Boot-up Drive series are compact, high-performance devices which use Cable-less SATA Power technology to simplify server design. The Boot-

Up Drives also implement evolved firmware algorithms that greatly extend data retention. With a height less than 1U and by using dedicated SATA connectors, server scaling is made easy while also freeing up more space for storage devices.

Innodisk's Server DIMM series comprises Very Low-Profile (VLP) and MINI DIMM such as 2666 MT/s 16GB MINI DIMM-VLP and 8GB MINI DIMM-VLP. These high-capacity DRAM modules are energy-efficient and designed to allow maximum airflow, thus keeping server maintenance costs to a minimum while simplifying server scaling.

## Surveillance

With lower prices and extended longevity, SSDs are increasingly popular in the quickly growing surveillance market. The InnoREC feature set comprises multiple form factors that are optimized for surveillance applications. The RECLine feature combines several technologies that together deliver the optimal write performance for data recording.

DRAM modules such as 2666 MT/s UDIMM-VLP and 32GB RDIMM-VLP offer high performance and

small form factors that are perfect for surveillance applications. Innodisk's isolated expansion cards provide reliable and robust PoE expansion that is certified and tested for harsh environments. With a large set of form factors and interfaces, our PoE expansion cards are easily integrated into any system.

## Aerospace and Defense

InnoRobust is Innodisk's DRAM and flash storage feature set designed for Aerospace and Defense applications that complies with MIL-STD-810G. It incorporates technologies and design features aimed at maximizing operability in extreme conditions. In addition to this, our data security features can delete and even physically destroy data in the blink of an eye, ensuring that vital information does not fall into the wrong hands. Our aerospace and defense storage devices also come with hardware integrated 256-bit AES cipher, further increasing data security.

The customized, high-performance XRDIMM is the best choice for operations in extreme conditions. With a 300-pin connector and dual mounting holes, the module can be securely attached to any system.



▲ Innodisk's booth is at 1F, J0818, Nangang Exhibition Hall

# iST debuts HDR color calibration services amid soaring HDR screen demand

## Press release

Aiming to present the real world in the eyes of consumers, imaging technology is attracting input and effort from scores of AV manufacturers. iST, the leading electronic verification and test lab, is debuting its "HDR (High Dynamic Range) measurement and color calibration service." As only a handful of labs are qualified to offer HDR calibration services, scores of global display, computer, and TV brands are seeking iST's assistance of this.

Thanks to fast adoption of 4K TV technology, use of wide color domain, and video streaming at speeds up to 60fps, the image display quality pursuer is now facing the challenge of "brightness dynamic range" in presenting the real world as seen by consumers, iST noted.

HDR, the technology to meet this challenge, has become the hottest subject of imaging technology in every big consumer electronic expo around the world lately. Each AV

equipment manufacturer is rushing to invest in HDR technology to raise the dynamic range of images and set up the required standards to control the quality of this advanced specification.

Eric Yu, director of iST's Signal Integrity Business Unit, said that many display and computer TV makers are seeking iST's helps in tackling screen abnormalities despite successfully calibrating according to the EOTF standard (The EOTF standard is aimed at the electro-optical conversion functions for converting telecommunications signals into visible light) when applying the HDR technology.

Most errors in HDR applications, including high brightness and contour symptoms of discontinuous low brightness found in screens, are caused by an incorrect algorithm or poor settings in the internal IC components adopted by the display manufacturer, he elaborated.

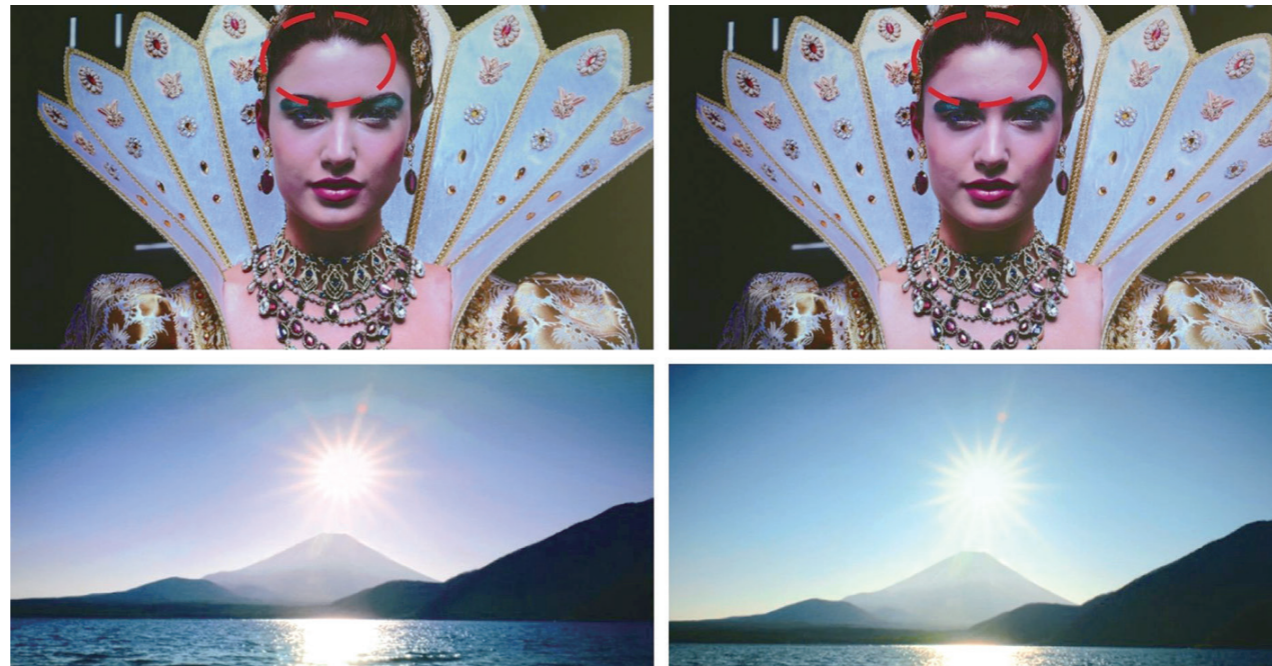
In addition, recognizing that the HDMI wired transmission interface is the main connection port for consumer

display products, most display product makers tend to get HDMI HDR (HDMI2.0a) certified as the first step in introducing HDR products.

iST is an HDMI authorized lab

(ATC). With a team of members of comprehensive hands-on experience from leading IC design houses and display and TV manufacturers, it is more than qualified to provide HDMI

HDR certification service as well as HDR algorithm requirements and customized calibration in the role of consultant.



▲ (Top left) Discontinuous contour is obvious at high brightness due to incorrect algorithm. (Top right) With iST's tone improvement, the high bright region becomes smooth and keeps the contrast. (Bottom left) Poor contour on high bright region. (Bottom right) iST's tone improvement makes image with more steps in brightness and smoother transitions.

# Asustor debuts new flagship NAS models, ADM 3.0 and Surveillance Center 2.7

## Press release

Asustor has unveiled its new home and business series NAS models at Computex 2017. Included among these are the new mid-tier AS6302T and AS6404T tower models which introduce the new generation Intel Apollo Lake platform with Celeron processors and feature Wake On WAN network wake technology for both security and power saving benefits.

With regards to business users, Asustor is exhibiting the top-tier AS7004T-i5 and AS7010T-i5 flagship models which both utilize powerful Intel Core i5 quad-core processors. The AS7010-i5 also comes equipped with a 10GbE network card expansion slot for use in high performance environments.

The new AS6004U storage expansion unit has made an appearance as well. This unit features four hard disk bays and is compatible with 10TB hard disks. Asustor is also showcasing the all new ADM 3.0 interface, highly

efficient Surveillance Center 2.7 and innovative new multimedia Apps.

Asustor is at Taipei Nangang Exhibition Center, 4th floor, booth L1324.

## ADM 3.0

Asustor's brand new ADM 3.0 operating system is one of the main

focuses of this year's exhibition featuring a live demonstration that allows users to try out the most intuitive NAS experience firsthand. Asustor's ADM 3.0 interface is able to provide an optimal desktop configuration based on the display resolution of monitors and also adds new features such as desktop

widgets, system announcements and icon grouping, creating a familiar tablet-like user experience.

The introduction of the EZ-Connect function along with the Asustor Easy Connect (AEC) utility provides support for Internet Passthrough which allows users to bypass previously complex router configurations and connect to their NAS easily from anywhere with Internet access.

## Surveillance Center 2.7

Asustor NAS allows users to turn their NAS into a professional NVR free of charge by simply installing Surveillance Center. The Surveillance Center 2.7 combined with an AS7010T-i5 unit and dual monitor setup displaying 64 channels of surveillance feeds along with an eMap. Asustor's Surveillance Center features the centralized monitoring software CMS Lite which meets demands for multi-location surveillance and streaming from a variety of servers. CMS Lite can centrally manage up to 128 IP

cameras in different locations on 32 Asustor NVRs.

New functions featured in Surveillance Center 2.7 include two-way communication via the AiSecure mobile app, the exporting of recording files via local display to USB drives and scheduled/manual powering on and off of cameras.

## Turning NAS into home multimedia cinema

Asustor NAS provides advantages in addition to just storage. Asustor Portal can turn a NAS into a home entertainment center giving users the ability to play all multimedia files stored on the NAS. At Computex, Asustor is exhibiting brand new functions from LooksGood, videos from the NAS can now be played via UPnP compatible players. Asustor will also be launching a dedicated Apple TV app that can directly play content from LooksGood. In the multimedia exhibition area, visitors will be able to take photos and upload them to Photo Gallery on an Asustor NAS.



# U-Reach launches the first high speed PCIe SSD duplicator

## Press release

With the rapid improvement in the storage technology, PCIe SSD is considered to be a replacement to SATA 3.0 and the dominant trend in the industry. High-end computers in the industry have accepted the specification as the standard. U-Reach, as the leader in the data equipment industry, will be launching the first high speed PCIe SSD duplicator that meets the industry expectation at 2017 COMPUTEX Booth No. J1208.

## Unique FPGA technology, ideal duplication effects

U-Reach's PCIe adopts high-end FPGA design, which does not require a computer for operations, which completely eliminates the possibility of a virus attack. The operation is simple, just press the button and duplication process starts at a high speed. Compatible with both NVMe and SATA protocol, the duplication speed is the fastest in the industry, tested at up to 18 GB per minute.

## Largest and fastest PCIe SSD duplicator in the industry

Unlike PC duplication, usually restricted by shared bandwidth as the number of targets increases, the speed dramatically decreases. The PCIe from U-Reach maintains a consistent speed of 18 GB per minute. After each cycle of duplication, the user does not have to restart or wait to get it reset. Instead, they can begin the next round of duplication while increasing production efficiency.

## Duplicator with different number of ports

U-Reach offers a complete range of PCIe SSD duplicator with the number of ports ranging from 1:1 to over 1:30. Thus, allowing the customers to select the model that best meet their requirements.



▲ 1 to 20 PCIe SSD Duplicator

▲ U-Reach releases the world's Only Non-PC Based PCIe SSD Duplicator



# Congatec announces the global availability of its personal integration support offerings

**Press release**

Congatec, a technology company for embedded computer modules, single board computers and embedded design and manufacturing services, has announced the global availability of its personal integration support offerings for OEMs at Computex Taipei (Booth J1224). The personal integration support is a premium service from Congatec that is designed to simplify the use of embedded computing technologies.

OEM customers around the globe benefit from a single contact point to get all their design-in questions answered. There is no need to wait in an impersonal hotline or speak to constantly changing contact persons. Instead, a dedicated support team member takes care of answering all individual design-in questions.

“Our global integration support engineers have a personal responsibility for customer

requests and are trained to help customers’ engineers to significantly reduce cost and time efforts within their projects. By helping OEMs to overcome integration challenges we, in turn, help them improve their clients’ project performance while building a strong and trustful relationship and even a kind of joint team spirit,” explained Jason Carlson, CEO of Congatec.

For China, Taiwan and further APAC countries, the Congatec design center in Taipei – opened in 2015 – takes care of the personal integration support. The design centers for Europe are located in Germany and the Czech Republic. For the Americas, the design center is located in Boca Raton, Florida. Further personal integration service teams are located in the UK, France, Japan and Australia. At all these locations, customers receive premium support for the design-in of the latest new products and best-practice designs shown

by Congatec at the Computex tradeshow.

One highlight of the Computex showcase is the quick boot demo based on Congatec’s Qseven conga-UMX6 computer-on-module with NXP’s (former Freescale) i.MX6 processors. i.MX6 processors enable a highly customizable quick boot of systems in less than a second from power off to full operation including running applications.

Also brand new is the new SMARC 2.0 computer-on-module demonstration on the basis of Intel Atom, Celeron and Pentium processors (codename Apollo Lake) where congatec presents the implementation of fully featured USB Type C connectivity with USB 3.1, power and graphics.

A highlight for the high-end embedded and edge sever sectors are the new COM Express Type 7 based server-on-modules offering server-grade performance and functionality with their Intel Xeon D processors, 2x 10 GbE and 32



▲ Bryan Lin showing COM Express Type 7

PCIe lanes.

Congatec also showcases its broad portfolio of embedded boards and modules based on the latest Intel Atom, Celeron and Pentium processors (codename Apollo Lake) and Intel Core processors (codename Kaby Lake) offering comprehensive off-the-shelf driver support for various

industries and communication demands.

The new Congatec Cloud API (Application Programming Interface) that is designed for IoT gateways and edge servers, rounds off the innovations displayed by the German provider of boards, modules and embedded design and manufacturing services.

# WIME RS360 round 3G smartwatch, a return to tradition

**Press release**

WIME launches the RS360 round 3G smartwatch in 2017. It is a full-featured smartwatch supporting 3G plug-in SIM card and Bluetooth communication, health management functions with heart rate sensor and pedometer, as well as altimeter, barometer, and thermometer.

The RS360 smartwatch with a classic rounded shape appeals to those who love traditional watch styles. In addition to Bluetooth connection, it

also supports a 3G plug-in SIM card to provide users standalone 3G communication capability without the need for a smartphone.

For users in certain regions of the world or at places where the weather changes frequently, a smartwatch that tracks the elevation, atmospheric pressure and temperature can keep users informed of environmental changes and remind them to take measures to protect themselves from falling under the influence of sudden changes. For those

who travel for business or for fun or those who love outdoor activities, a smartwatch with built-in altimeter, barometer, and thermometer is portable, prevents misplacement and monitors user’s biophysical signs. The RS360 smartwatch does all that.

With the RS360’s built-in heart rate sensor and pedometer, the user is aware of how effective his or her aerobic exercise is and is able to prevent excessive workout from overburdening the heart. The pedometer enables

a precise calculation of the number of calories burned. The RS360 smartwatch allows the user to set a weekly exercise goal and reminds him or her to keep exercising until the goal is reached.

The RS360 round 3G smartwatch, with 3G plug-in SIM card, Android OS, Bluetooth communication, alert messages and health monitoring features, is scheduled to go on sale in the second half of 2017.

► WIME launches the RS360 round 3G smartwatch in 2017



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## CPX Conference

### From Mobility to Intelligence

May 30, 2017	13:00-17:00 [Keynote] – Future Technology Trends
May 31, 2017	08:30-12:30 [Forum] – IoT+ 13:30-17:30 [Keynote] – Artificial Intelligence
June 1, 2017	09:00-12:00 [Forum] – Innovations & Startups

Venue: Taipei International Convention Center (TICC)

Rene Haas ARM	Chih-Han Yu Appier	Jeffrey A. Rhoda IBM	Jim Cathey Qualcomm	Robert B. Crooke Intel	Marc Hamilton NVIDIA	Andy Rhodes Dell
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Organized by: Taiwan External Trade Development Council, TAITRA



Gigabyte preparing full series gaming notebooks for 2017's single-digit percentage on-year growth:

## Q&A with Gigabyte executives on notebooks

Joseph Tsai, Taipei

Digitimes recently had a chance to sit down with Vincent Liu, Gigabyte's Director of Sales and Andy Chu, Supervisor of Product Marketing Section to talk about the company's business plan for 2017.

**Q: Can you tell us about the gaming notebook market?**

A: In 2016, the gaming notebook market had shipments of around 4.5 million units. We have looked through many research firms' reports and collected information from related players in the industry and we believe this volume was the closest to actual shipments in the market.

In the past 3-4 years, the market is commonly believed to have enjoyed 15-20% on-year growth annually and this growth tends to fit what Gigabyte has observed in the market.

Between 2015 and 2016, the market saw a dramatic growth in shipments, which was the result of what I call a change in definition. The fact is that overall shipments for notebooks has not seen any growth over the past few years but the segment for gaming models seemed to continue achieving growth. However, it appears that some of the growth was just that more notebooks were being identified as gaming models.

With notebook prices having fallen over the past few years, notebooks priced at around US\$1,000 are now considered high-end by most consumers as they are able to spend US\$600 to purchase one that suits their needs. The same issue is also happening with gaming notebooks.

A couple of years ago, many notebook vendors would only consider a GPU-featured notebook

with a price above US\$1,500 as a gaming model. However, the definition has changed with Nvidia placing the GTX title, which was previously only given to 760M and above chips, to its 850M series and above mobile GPUs and with the continued drop in pricing, the standard of a gaming model had been lowered to a product with a GTX GPU and priced around US\$1,200.

In the past year, the standard was further lowered to US\$900 with a GTX GPU thanks to gaming notebook vendors' strong hardware capabilities, which allows them to make products with the same strong performances as the US\$1,200 models, but with lower costs. The US\$300 price drop then attracted more demand and relatively increased gaming notebook shipments; however, the increase does not come from nowhere, it is actually replacing demand for some other notebook models.

Since pricing is already approaching its limits we believe the gaming notebook market's growth is likely to slow down. For 2017, overall shipments will still have a single-digit percentage growth, but we are not very optimistic about it returning to 15-20% on-year growth as in the past.

**Q: So the competition will become fiercer?**

A: There have been many vendors joining the gaming notebook market during the past couple of years, but the entry barrier will grow higher for newcomers. However, that does not mean there will not be any new player joining the market since it is still a popular sector and related products have good profits.

As for China, many regional brands and white-box makers

are having increased influence in the gaming notebook market and their strong brand marketing and aggressive pricing strategy is helping them expand their market shares. Even first-tier vendors are seeing difficulties penetrating into the territory.

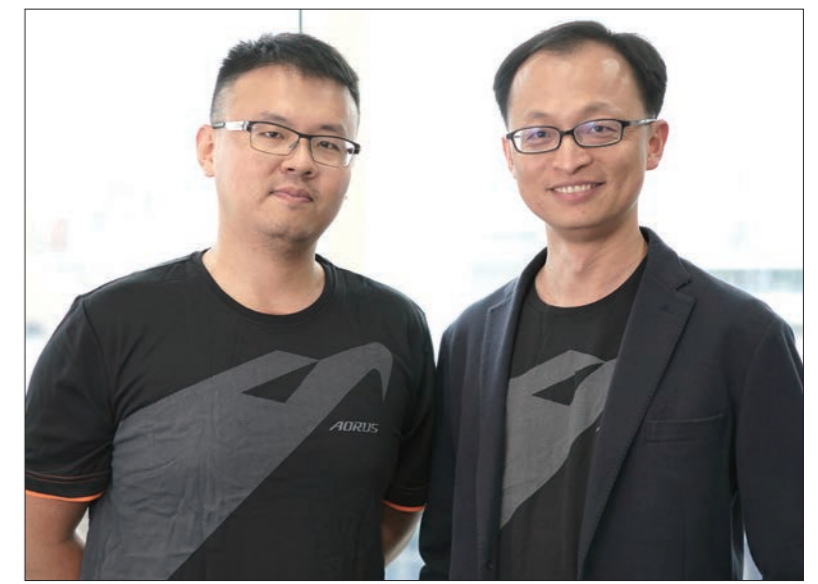
**Q: What is Gigabyte's product plan for the market this year?**

A: Currently, Gigabyte is mainly pushing four major product lines for the notebook business. The first one is our sub-brand Aorus for gaming products and we currently have three notebook models under the brand: X3 with a 13-inch display, X5 with a 15-inch one and X7 17-inch. The three notebooks are our top-end products and are built specifically for extreme gamers.

The second product line is the Aero series under the Gigabyte brand. The series mainly targets what we call a market that is not just for gamers and we hope that consumers are able to experience the benefit of high-performance notebooks via the series.

Traditionally, gaming notebooks' exterior is designed to look powerful, but we have heard feedback from users from professional industries such as art design, where they have a wish to have a strong performance product with an ordinary but fashionable design and Aero was created for such demand. Users of Aero notebooks are able to use their devices to run the heavy-workload software applications needed for their professions.

Our Sabre series, which is also under the Gigabyte brand, mainly focuses on consumers that value a price/performance ratio primarily and we currently have two notebooks – the Sabre 15 and 17 under the series.



▲ Vincent Liu, Gigabyte director of sales (right) and Andy Chu, Supervisor of Product Marketing Section (left)

The last one is the P series. With the Sabre series helping to cover the entry-level to mid-range gaming sector for the Gigabyte brand, the P series is meant to fill the brand's mid-range to high-end gaming segments. Products under the P series feature higher-spec GPUs than those under the Sabre series.

**Q: What are the plans for Computex 2017?**

A: For Computex, we are showcasing our new Aorus X5 and X7 both featuring latest CPU platforms as well as new added functions such as support for Thunderbolt 3.0 transmission and integration of a DAC solution from ESS Technology to improve the two machines' audio output.

For the Aero series, we have already announced the Aero 15 that integrates a 15.6-inch display into a 14-inch notebook chassis with ultra-thin bezel design in early May, and the notebook is also being showcased at our booth at Computex.

We are also adding a new member to our Sabre series. In addition to existing Sabre 15 and

17, we will introduce the new 15-inch SabrePro, which is expected to be our key force in price/performance ratio battles with competitors, featuring Nvidia's GeForce GTX 1060 GPU.

The latest addition of the P series was the P56 featuring Nvidia's GeForce GTX 1070.

**Q: What about VR?**

A: Our thought on VR development has not changed and we want our notebooks to be the best products to run VR applications. We have partnered with most of the available VR head-mounted display (HMD) projects such as HTC Vive, Oculus Rift and OSVR and all of them can be used directly when connected with Gigabyte's notebooks.

In fact, Gigabyte has even redesigned its notebooks to pull a HDMI port directly out of the GPU to allow VR systems to work stably. Our notebooks featuring GeForce GTX 1060 and above GPUs, have all been certified by Nvidia for VR Ready, while Aorus X7 has also received certification from Oculus for its VR platform.

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