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internationally trusted technology magazine

Lifeline Of The Internet

Is Facebook Spying On Us?

How To Make Your Data Last

CES® 2018

The biggest consumer electronics trade show is back, and we present to you the best in show

REVIEWS: ASUS ROG Maximus X Formula, D-Link DCS-8000LH, MSI Optix G27C2, Wiko View Prime, Sony Xperia XA2 Ultra

Time For The Red Packets

Time truly flies when you least want it to but the new year's holiday has ended and the year is in full swing.

By the time you read this, the Consumer Electronics Show 2018 would be over. But don't worry! Like we do every year, we've made a round up of quite a number of the exciting products and showcases that were revealed in Las Vegas this year. Our CES 2018 coverage is from page 54 to 67.

Besides that, we have a number of articles in this issue that may tickle your interest. There's one that talks about the backbone of the internet we have today, while another discusses on the smartphone addiction of the current generation.

Of course, if reviews are more of your cup of tea, we have plenty of that this month as well. This issue, we got our hands on products we've not had for some time, like Razer, Altec Lansing, and Plantronics. Read more about them in our testlab section starting from page 78.

We also reviewed the highly rated "Legend of Zelda: Breath of the Wild" in our Lite 'n Leisure section this time, so those of you who are considering getting a Nintendo Switch should check that out as well.

Chinese New Year is also just around the corner, so to all who are celebrating, Happy Chinese New Year and Gong Xi Fa Cai!

Matthew Yap
Deputy Editor

International Members of the CHIP Family

China · Czech Republic · Germany · Hungary · India · Indonesia · Italy · Netherlands · Poland · Romania · Russia · Thailand · Turkey · Ukraine

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CHIP Downloads February 2018

We're back with our monthly dose of interesting, free and handy tools for you to enhance your PC experience. If you want to know how you can get these files, follow the instructions below:

1. Head on our website @ www.chip.com.my and right at the top, click on the "Downloads" tab
2. After that, click on the respective month's post. You will then be prompted for a password. The password can be found on this page monthly.
3. Navigate using the tabs and pick the categories you want to download the files from. Once you find the file you want, just click on it and you're good to go!

And it's as easy as that!

PASSWORD FOR FEBRUARY2018 - updateyourdrivers

Featured Tools

LMMS

An alternative to Audacity, LMMS allows you to compose music on Windows, Linux and Apple OS X. You are given the ability to sequence, compose, mix and automate songs in a single simple interface. There's also built-in effects such as compressors, limiters, delay, reverb, distortion and more to get you started.

slimware DRIVERUPDATE

slimware's DRIVERUPDATE scans your computer quickly and identifies the necessary downloads needed for updating your system. It uses cloud-based technology to find the latest driver updates to help your PC perform at lightning speed.

Renderman

Renderman is a powerful animation tool used by huge companies like Pixar and is optimised for physically-based rendering. It can deliver unmatched flexibility for any production pipeline, and also out-of-box productions shaders and lights with no development required.
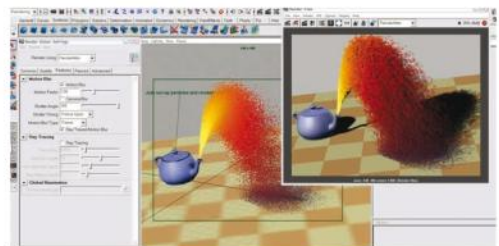
Essentials

Our list of essentials consists of programs and software such as graphics drivers, browsers, compression software and even Cloud storage software that will improve a PC user's experience. The links on our website won't provide you with the files, instead it will lead you to the developers' official website, where you can find the right file for you.

The Monthly Downloads

Maxthon
Operating system: Win XP, Vista, 7, 8, 10

Maxthon is a multi-platform browser that regularly outperforms other top browsers. It offers a seamless browsing and sharing experience.
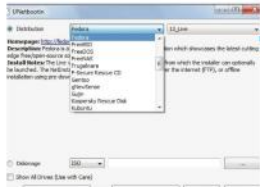
UNetbootin
Operating system: Win XP, Vista, 7, 8, 10

UNetbootin allows you to create bootable Live USB drives for Ubuntu and other Linux distributions without burning a CD. You can use your own ISO image or let it download one for you from a list.

Rambox
Operating system: Win XP, Vista, 7, 8, 10

Rambox combines multiple messenger services into a single interface. This software is free, open source and available cross platform. Rambox is perfect for those who work with many services and have different business and private accounts.

ImDisk Toolkit
Operating system: Win XP, Vista, 7, 8, 10

ImDisk gives you the ability to mount image files of hard drives, CD-ROMs or floppy disks and create one or several ramdisks with various parameters.

PureSync
Operating system: Win XP, Vista, 7, 8, 10

Use PureSync to synchronise your files and folders while also creating automatic backups whenever you want. It's as easy as choosing your source folder and then designating a target location to backup your files.

AnyDesk
Operating system: Win XP, Vista, 7, 8, 10

A small and easy to use program to remotely control your computer securely. One of the fastest remote desktop software on the market, is allows for new usage scenarios and applications that were previously not possible.

FastCopy
Operating system: Win XP, Vista, 7, 8, 10

Some people aren't a big fan of Window's default file manager, which is why they turn to programs like FastCopy that can not only integrate and replace the Windows File Manager, but does a cleaner and quicker job.
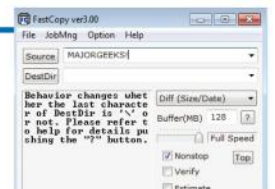
Capture2Text
Operating system: Win 7, 8, 10

Capture2Text captures text directly from audio and visual media/sources, so if you ever wondered what a sign board in a picture is said in a different language just copy it and translate it.

Comodo Firewall
Operating system: Win XP, Vista, 7, 8, 10

Your first line of defence in protecting yourself online, Comodo Firewall is a multi-layered security application that will constantly monitor and defend your PC from Internet attacks.

Epson Showing The Way In Projection

No slouch to the projection industry, Epson is showing why they are on top

Epson recently premiered its latest products, particularly projectors. To make it more unique, the showcase had the "Epson Town" theme, which illustrates the brand's product in conditions and surroundings which they can be used in.

Daisuke Hori, the Managing Director of Epson Malaysia said: "When it comes to developing new technologies and innovations, we believe that it's our attention to details that makes a fundamental difference and sets us apart from our competitors. These details come from listening to what our customers want from our products, and satisfying their needs by designing products that exceed their expectations. In terms of Epson's projection innovation, every component in our projectors is created with the same obsessive attention to detail to ensure spectacular performance that will stun even the biggest crowd."

The Epson crew first showcased the Epson EB-700U projector. By placing it in a coffee shop environment, it was able to project the shop's menu with a short distance from a wall. Along with its multi-direction capabilities, ot can project a mirrored menu looking from the inside, so it will look straight to customers when looking from outside. This is perfect for attracting customers in confined retail spaces. The EB-700U can also be rotated 360 degrees, while keeping the same image brightness, making it suitable for projecting on walls or ceilings. It can project up to 130-inches in either portrait or landscape mode.

Epson also showcased the EB-L1755U, the most compact series of 3LCD laser projectors in its class, with 15,000 lumens of brightness. In addition, it can last up to 20,000 hours and is maintenance-free. It can also display images in high quality of SXGA+ and WUXGA resolutions.

Another projector we got to see is the EB-1470Ui, a projector that combines cutting-edge laser light source technology, ultra-short throw capabilities, as well as interactivity. This allows the projection to be drawn on, giving extra usage for collaborations, ideas and displays for multiple sectors such as in school, at work and etc. Additionally, it has a long life of 20,000 hours and is capable of displaying up to 4,000 lumens of white and colour brightness. The EB-1470Ui can also display up to 100-inches, increasing readability and productivity at the same time. You can even combine two projectors together to display an interactive screen of up to 177-inches.

Epson also demonstrated the usage of its new Augmented Reality glasses, the Moverio BT-350 Smart Glasses and Moverio Pro BT-2200. The Moverio BT-350 Smart Glasses combine the interactivity and wonder of AR in a museum setting, adding extra information that is only known to the wearer for a piece of artwork. This will greatly benefit kids at museums, allowing them to absorb more knowledge. As for the Moverio Pro BT-2200, it is a smart headset that is designed for industrial usage. The headset will allow workers to know what other workers are doing at the same time, increasing productivity and teamwork during critical moments. It is also designed to fit hard hats, which is ideal for dangerous working environments, while allowing full usage of both hands.

https://www.epson.com.my/

(Second from left) Danny Lee, General Manager, Sales & Marketing of Epson Malaysia; Daisuke Hori, Managing Director of Epson Malaysia; and Jennifer Low, Product Manager of Epson Malaysia, flanked by models

The EB-700U

The Epson Crew giving a simulation of presenting using the EB-1470Ui

BUSINESS PROJECTORS
EB-S41/X05/X41/W31

EPSON
EXCEED YOUR VISION

RAMPING UP FEATURES. DRIVING DOWN COST.

FEATURES

COST

Ideal for the meeting and huddle rooms, the affordable Epson EB-05/40/30 projector series is multi-functional, packed with features and the perfect choice to present true-to-life images. Captivating presentations are now possible with stunning colour and white brightness of up to 3,600 lumens to ensure crystal clear images. The intuitive home screen puts all commonly used functions together for easy selection.

EB-X05

EB-S41/X41

EB-W31

10,000 Hours Lamp Life in Eco Mode

Multi-PC Projection

Horizontal Keystone Adjuster

HDMI

Environmentally Friendly

WORLD'S NO.1 PROJECTORS
16 YEARS RUNNING 2001-2016
SOURCE: FUTURESOURCE CONSULTING

3LCD

Up to 3x Brighter Colours with Epson Projectors

3x WIDER COLOUR GAMUT Epson Projectors

NO RAINBOW EFFECT

ENGINEERED FOR BUSINESS

User-Friendly Features
Designed with the user in mind, the horizontal keystone adjuster and a front facing exhaust ensure a seamless and comfortable experience.

Connect and Project with Ease
Epson iProjection™ application enable files and images to be projected directly from your smart devices.

Cost Savings All Round
Lamps and filters can last up to 10,000 hours in eco-mode and are easy to replace even when projector is mounted on the ceiling.

To find out more, visit **www.epson.com.my/projectors** or call **1800-81-7349 (Toll-Free)**

Join us **f** EpsonMalaysia

Taking Selfies To A New Level With Galaxy A8 and A8+

Waterproof, affordable and good looking, the new Galaxy A8 and A8+ now in stores

The Galaxy A8+ with its smaller brother, the A8

In mid January, Samsung invited us to attend the launch of their highly touted devices, the Galaxy A8 and Galaxy A8+. The event took place at SkyBar, offering great views and atmosphere while witnessing the launch. They even invited a team of synchronised swimmers for a performance!

Yoonsoo Kim, the President of Samsung Malaysia Electronics said, "We are delighted to host a pool party to welcome 2018 and at the same time, reveal the new Samsung Galaxy A8 and Galaxy A8+! We understand that millennials today enjoy documenting and sharing their experiences on social media, so Galaxy A8 and A8's Dual Front Camera ensure all selfies captured — whether in or out of the water — are flawless."

As Kim mentioned, the A8 and A8+ are Samsung's first device to sport a Dual Front Camera setup for all your selfie needs and desires. But that is not all, as both devices are packed to the brim with features and top of the line specs to make it a great buy for the year 2018.

First up is the Galaxy A8. It comes with a 5.6-inch Full HD+ Super AMOLED display and runs on a Exynos 7885 processor, 4GB of RAM and 32GB of internal storage, which can expanded by adding a 256GB microSD card. It also comes with a 3,000mAh battery with fast charge capabilities, thanks to the inclusion of USB Type-C. The rear camera is a 16-megapixel shooter, while the front cameras come with a 16-megapixel + 8-megapixel dual camera setup.

The Galaxy A8+ comes with the same camera specs and processor, but does have a few differences. For the display, it features a 6-inch FullHD+ Super AMOLED display, 6GB of RAM and 64GB of internal storage. You can also increase the storage with a 256GB microSD card. Moreover, it comes with a bigger 3,500 mAh battery compared to the A8, and also has fast charging support.

With the A8+, you can easily swap between which front camera to use for your selfies, giving you an option of close-up shots or portrait shots with detailed backgrounds. Using Live Focus, you can even adjust the background blur (bokeh effect) before or after taking the pictures. Both devices are also IP68-rated, allowing your precious device to withstand elements of sweat, rain, dust and the likes. You can even take pictures underwater with these devices.

Both devices come with three colour variants of — Black, Gold and Orchid Gray. The A8 is priced at RM1,799 while the A8+ retails at RM2,499.

http://www.samsung.com/my/

From the left: Mr. Liew Kian Meng (Head of IT & Mobile Business, Samsung Malaysia Electronics), Mr. Yoonsoo Kim (President, Samsung Malaysia Electronics) and Mr. Yoo Jin Hyun (Business Director, IT & Mobile Business, Samsung Malaysia Electronics) posing for a picture with the new devices

From left: Lu Kai Lin, CEO of Thunderobot; Tracy Cui, Microsoft Asia Consumer Devices Sales General Manager; and JH Soong, CEO of ECS Astar Sdn. Bhd.

Thunderobot Makes Malaysian Debut

A new challenger appears in the gaming laptop scene, with some competitive pricing to shake up the market

Founded in January 2014, Thunderobot is a brand from China that offers gaming-related products to consumers. This includes gaming peripherals like mouse and keyboards, as well as gaming notebooks for all range of users. Following relative success on the mainland, the brand has now made land fall in Malaysia, bringing with it four new gaming notebooks – along with some of their peripherals – to our shores.

The flagship model among the newcomers is the Thunderobot DINO, along with the Thunderobot 911GT, 911SE and ST Plus. Featuring the Intel 7th Gen Core i7-7700HQ processor and Nvidia GTX 10 series GPUs inside, these laptops are definitely made for gaming. Each model also has some of its own special features to appeal to the younger audience of gamers today, such as RGB backlighting for the keyboard or Creative Sound Blaster audio chipset for better positional sound.

Sitting at the top of the pile is the DINO, which was made with a futuristic design in mind. It features a metal chassis with blue backlighting around it and comes with great hardware. Specifically, it not only uses Intel's Core i7-7700HQ processor, but also up to a Nvidia GeForce GTX 1070 with 8GB of GDDR5 VRAM and 32GB of DDR4 memory. For optimum efficiency during long hours of gaming, it comes with two fans and a heatsink with four free conduction copper heatpipes internally for greater cooling.

Its size is standard for a gaming laptop, as it has a 15.6-inch Full HD IPS display. Users can also game with two additional monitors with it by using the HDMI 2.0 port and mini DisplayPort. Besides that, it has a RGB backlit keyboard for that little bit of design fanciness.

The 911GT is a much larger model here, since it comes with a 17.3-inch IPS display instead. It also has an integrated subwoofer for deeper base and a white-backlit keyboard. In addition, it uses the same cooling system as the DINO for its Core i7-7700HQ CPU and GeForce GTX 1060 GPU.

Those with more modest needs, or a lighter wallet, can opt for the Thunderobot 911SE or ST Plus instead. Using the same CPU as its other two siblings, but decked out with a GTX 1050/1050 Ti instead, they come with Create Sound Blaster X-Fi MB5 for better audio effects. The ST Plus also comes with RGB-backlit keyboards, while the 911SE has white-backlighting.

ECS Astar Sdn. Bhd. currently holds sole distributor right for the new gaming notebooks and has made it available via Lazada Malaysia. Prices are set at RM8,899, RM7,099, RM4,499 and RM4,899 for the Thunderobot DINO, 911GT, 911SE and ST Plus, respectively.

thunderobot.com

A&S 2.1 BAR WITH BUILT-IN SUBWOOFER 200

From Left Mukesh Srivastava, Head Channel Marketing, Sony Mobile Malaysia; Nadia Heng, Xperia Creator; Jason Lam, Channel Specialist, Sony Mobile Malaysia

Sony Introduces Dual Selfie Smartphone

Fresh out of CES 2018, Sony Malaysia introduced its three new smartphones, one of which contains a dual front camera

Dashing out of the gates of 2018, Sony Malaysia is among the first to bring something new to the Malaysian smartphone market. The Japanese brand has released three new midrange devices – the Xperia XA2 Ultra, XA2 and L2 – with great design and the company's signature camera technology.

"Our super mid-range product strategy started out as an exciting new idea based on bringing bold technologies to this section of the market in the most accessible way possible," explained Mukesh Srivastava, who is the Head of Channel Marketing for Sony Mobile Malaysia. In his short briefing, he mentioned that Sony Mobile is looking to make 2018 its breakthrough year in the mobile smartphone market and that the company will be showing more innovations across the Xperia portfolio in the months to come.

At the top of the line is the new Xperia XA2 Ultra, the successor to the XA Ultra from last year. It's built for the selfie enthusiast, so it comes with a dual front camera. One of them is a 16-megapixel lens with optical image stabilisation, while the other is an 8-megapixel lens that covers a wide 120° angle to ensure you can fit more people into your shots. Both lenses come with its own flash, which helps produce very clear selfies no matter the lighting or environment. The rear camera is no slouch either, as it's a 23-megapixel shooter with ISO 12800 sensitivity for greater low-light pictures, as well as 4K recording and 120fps slow motion capture for those special moments.

Besides that, the XA2 Ultra has a slim body that is nigh borderless, allowing it to accommodate a large 6-inch Full HD display.

With a large 3,580 mAH battery and smart charging technologies, you can expect it to keep going for the entire day.

The XA2 is the smaller brother of the XA2 Ultra. Other than the lack of the dual front camera, a smaller body and battery capacity, it's essentially the same. This model and the XA2 Ultra both use Qualcomm's Snapdragon 630 chipset to power it.

Last but not least is the Xperia L2, a 5.5-inch device that also has the 120° wide-angle front camera (8-megapixels) for those group selfies, as well as a 13-megapixel rear shooter.

Sony Mobile Malaysia has announced that all three devices will be available beginning 9th February 2018 at RM1,999, RM1,299 and RM999 for the Xperia XA2 Ultra, XA2 and L2, respectively. ◼

www.sony.com.my

A New Adventure For Sennheiser

Taking Malaysia's audio world by storm, one ear at a time

The year is starting big for Sennheiser in Malaysia, as the audio brand launched its new flagship store at Lot 134, Level 1, Suria KLCC. If you are unfamiliar with KLCC, the store is right opposite illy caffe.

At the launch, we were joined by Martin Low, the Managing Director of Sennheiser Asia, Eric Denise, Senior Vice President of Market Development at Sennheiser, Chris Low, Vice President, CE Retail at Sennheiser Asia, Vince Tan, Vice President, Pro Audio at Sennheiser Asia, and other notable VIPs. Even Pan Wee Siong, the Managing Director at MyPanTrade made an appearance as well.

In his opening comment at the event, Martin Low said: "We are pleased to host our latest flagship store in a prominent landmark location such as Suria KLCC.

As consumer preferences evolve, so do our retail experiences. We want to be an integral part of every audio lover's journey by offering a place for music lovers, content creators and gadget fans alike to gather ann exchange experiences together with Sennheiser, as we continue to bring the future of audio to Malaysia."

But what makes a store opening like this so special is that Sennheiser has brought in the prestigious, the revolutionary, the outstanding and the extraordinary Sennheiser HE 1 in store. Now, locals can feast their eyes and wet their ears with the audio nirvana that is the HE 1. To do so, simply give a call to the store, and request for a slot to preview the HE 1. The store will make arrangements with their audio engineer

and when the time is right, they will contact you again. It is just that easy, like booking for a doctor's visit.

Aside from that, the store is filled with a myriad of other Sennheiser goodness – products ranging from gaming audio, budget earphones to heavily touted audiophile headsets, can all be purchased there. Besides that, products such as the MOMENTUM HD 1 Pink Floyd Edition can also be seen there, while those interested in the HD 25 Robin Schulz Edition can also find it there. ◼

https://en-us.sennheiser.com/

Some of the Sennheiser products on sale

From left to right: Chris Low, Vice President of CE Retail at Sennheiser Asia, Martin Low, Managing Director at Sennheiser Asia, Pan Wee Siong, Managing Director at MyPanTrade, Eric Denise, Senior Vice President of Market Development at Sennheiser, Vince Tan, Vice President of Pro Audio at Sennheiser Asia, and Alex Lim, Head of Marketing at Sennheiser Asia

CYBER RESILIENCE & INFO SECURITY CRIS 3.0 CONFERENCE

11 & 12 APRIL 2018
8:00AM - 5:45PM
SETIA CITY CONVENTION CENTRE
SHAH ALAM

SECURING YOUR IOT IN INDUSTRIAL REVOLUTION 4.0

Join us in this seminar filled with security experts that will help you secure your organisation

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Inspiring thought leader
Connects together with the best and brightest speakers in CyberSecurity, Cloud Computing, IoT and Big Data

Security challenges ahead of industry 4.0
Preparing for industrial revolution 4.0, by exploring current security challenges and trends in the era of digitalization..

Real-life hack demo
Witness real-life hack demo of how hacking works and explore solutions to protect your organization from cyber breaches.

Real-life case study
Learn first-hand from CyberSecurity experts and IT C-levels of large corporations regarding cyber breaches

Incredible networking
Spend time connecting with ICT peers, our sponsors, partners and friends and share applicable knowledge.

Post-event session
Interactive, personalized follow-up sessions for selected participants after the completion of the first series, where CRIS 3.0 speakers will conduct a catch-up for recent updates of the industry.

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honor considers Ai the next step in smartphone innovation and has included AI machine learning in the new honor View10

honor View10, Built With AI In Mind

Using a Neutral-network Processing Unit, this smartphone wants to learn how to better serve you

honor recently announced that it will be bringing its next major smartphone – the honor View10 - to the Malaysian market. By the time you read this, the View10 will already be available through the brand's own online shop – Vmall.

The View10 is honor's first smartphone that comes with the Huawei Kirin 970, a powerful processor that has a built-in NPU (Neural-network Processing Unit) that enables the device to be accustomed to you. It's capable of learning your user behaviour,

so that it can better know and understand you.

Aside from the Kirin 970, it also comes with 6GB of RAM and 128GB of internal storage. It is donned with a 5.99-inch display that has an 18:9 aspect ratio, dubbed the honor Fullview Display. Also, the fingerprint reader can be found on the front of the device this time. On the software side, it runs on the latest EMUI 8.0, which allows you to unlock the device with face recognition, and has AI capabilities with

accelerated translating, smart tips and so on to help you in the betterment of your daily tasks.

Camera wise, it comes with a dual rear camera setup of a 20-megapixel monochrome camera, and a 16-megapixel RGB camera. It also has a 13-megapixel front camera for all your selfie needs. Along with the assistance of the phones AI, your pictures will be automatically adjusted to look the best, without requiring you to have the skills of an expert photographer. As for the battery, it is equipped with a 3,750 mAh battery that has smart power management and honor supercharge. This combination enables fast charging of the device, allowing you to proceed with your daily routine without hitches.

Pre-orders for the honor View10 was held on the 8th of January, but those who are interested in the device can get it officially. During the pre-order sale, the lucky first 1,000 who managed to pre-order the device got to receive a special gift package worth RM699, which includes an honor band A2 and a Final Fantasy Redemption Card. As for the price, the honor View10 retails at RM2,099, and comes with two colour variants of Black and Blue.
www.vmall.my

OKI Teriostar LP-2060-MF
A New Challenger For Multifunction Printing

The OKI Teriostar LP-2060-MF is a wide-format multifunction printer that is made compact and is capable of high-speed printing, which is highly beneficial for companies that require wide-format printing. It is capable of printing 9 A1 pages per minute in landscape mode, and 10 D-size prints per minute as well. Being a multifunction printer, it is also capable of multitasking. This means that you can copy or scan while printing important documents. This allows the user to have constant workflow without all the downtime of waiting for a job to finish before being able to process the next job.

Compact And Intuitive

The LP-2060-MF is made to take as little space as possible, and to do so, it is equipped with a photo-conductor drum that allows the user to easily replace, ensuring that your prints will always be of high quality, while maintaining continuous workflow. Even with a whopping 4 paper rolls installed into the printer, it still maintains its compact size, and any replacements can be done from the front.

A 8.5-inch LCD colour touchscreen panel can be found on the front of the device. It is easy to use and navigate, saving you time and increasing efficiency with their readability and ergonomic key locations for speedy copying and scanning. The printer also enables you to copy blueprints easily and clearly by automatically detecting the background density of the original document and with high precision, copies the optimal density for your print, so you will no longer lose vital information from blueprints.

You can copy up to 999 copies at the same time, along with horizontal and vertical custom scaling so you can copy and print the documents with your desired size. It can also erase the frame of the original copy, and you can even copy the document partially or in mirror reverse. As for scanning, the printer sports a colour scanner with speeds up to 240mm per second to help increase the quality and productivity of your copying and scanning tasks. The scanner can handle documents of up to 914 mm in width and 15m in length.

Convenience Without Sacrificing Security

With the help of the TerioStation 2 software, you can separate or join TIFF and PDF files, and you can even change the file format easily. You can also scan and print using only a single software, saving you the hassle of scrounging around for the appropriate software. OKI also prioritises the user's security when it comes to printing by allowing the user to temporarily spool the print, allowing the print to be printed in batches, and allows the user to immediately cancel the printing process from the panel. It also supports user-authenticated prints via PIN codes, usernames, passwords and even smart cards, so the master user can control usage rights of each user. With the TerioStation 2 software, the output data can also be encrypted, and the user can enable a function that automatically and immediately delete printing data stored on the printers storage, protecting vital information.

Cyber Resilience Seminar Returns For The 3rd Time In Kuala Lumpur

The Cyber Resilience & Info Security Conference (CRIS) 2018, a co-joined effort by New Horizons Malaysia and PEOPLElogy Development Sdn Bhd, will be held for the third time this year on 11th and 12th April 2018 at the Setia City Convention Centre in Shah Alam.

The recurring event themed "Securing Your IoT in Industrial Revolution 4.0" returns for the third time running, with a brand-new look on the key note speakers and panelists. CRIS seminar aims at bringing together passionate and security driven IT personnel all over Malaysia in a single platform to learn, share and network with industry's inspiring thought leaders.

As the manufacturing industry embraces Industry Revolution 4.0 along with other transformations that facilitate the revolution such as automation, data exchanges, cloud, cyber-physical systems, robots, Big Data, AI, IoT and (semi-)autonomous industrial techniques, leading security experts have warned that cyber security concerns are very real, global and growing. Threats include theft of trade secrets and intellectual property, hostile alterations to data, and disruptions or denial of process control.

This conference will provide a networking solution for security centric IT personnel to be able to use the conference as a first focal point to build professional relationships with people from different industries who share the same job purposes and passion. It is also expected that around 400 attendees from around South East Asia region, including senior decision makers and information security enthusiasts, along with prominent IoT and cyber security innovators in the information security industry will be in attendance.

Some of the segment of the conference include real-life hacking demo, to be performed live to the audience by one of the keynote speakers in order to expose the audience on how easily their organisations can be exposed to cyber breaches. At the same time, it is to equip them with in-depth knowledge on solutions to protect their organisation's assets from cyber breaches.

Some of our speakers at the summit include:

- Wong Wing Keong, Principal Consultant, Wired Realm Sdn Bhd – MALAYSIA
- Saurabh Sarawat, Managing Partner, Across Verticals – MALAYSIA
- Faisal Yahya, AVP - Head of IT, Bina Nusantara University – INDONESIA
- Fong Choong Fook, CEO, Cybersecurity Consultant & Trainer, LE Global Services Sdn Bhd – MALAYSIA
- Peter Leong, Head of Group Technology, Kenaga Investment Bank – MALAYSIA
- Preethkaran J, Director KPMG – MALAYSIA
- Rodney Lee, CEO, DNeX Technology Sdn Bhd – MALAYSIA
- Mohammad Shahir Majed, Director, Malaysia Operational Technology Security Leader, Ernst & Young Advisory Services Sdn. Bhd.– MALAYSIA
- A.J Minai, TEDx Speaker | Storyteller |Digerati | Mentor |Chief Motivational Officer, Tomorrow Academy Sdn. Bhd. – MALAYSIA
- Melvin Foong Mun Hoe, CEO, Titan System Integration Sdn. Bhd. – MALAYSIA
- Lee Han Ther, Digital Security Advisor, REA Group ASIA. – MALAYSIA
- Syahril Aziz, Managing Consultant, Mycrypto Sdn Bhd – MALAYSIA
- Alan Yau, Chief Technical Officer, Sysarmy – MALAYSIA
- Raj Kumar, Chief Executive Officer, Cyber Intelligence Sdn Bhd – MALAYSIA

newhorizons.my/events/cris2018

Get The Full Samsung Experience

Samsung opens its doors to the public with an experiential zone that encompasses their Galaxy Ecosystem

From left to right: Jin Lim; KM Liew, Head of IT & Mobile Business, Samsung Malaysia Electronics; Alexis SueAnn; Lee Foo Hock, Director of The Hello station; Steve Lee SangChul, President and CEO of Samsung Electronics Southeast Asia and Oceania; Josephine Yap; Yoonsoo Kim, President of Samsung Malaysia Electronics; Hosea Heen, Sales Head of IT & Mobile business, Samsung Malaysia Electronics

Samsung Malaysia Electronics celebrated the official opening of its latest Samsung Premium Experience Store in Pavilion Shopping Centre, to give Samsung fans in the city another outlet to fully experience the Galaxy ecosystem. Located in Kuala Lumpur's golden triangle, city dwellers can immerse themselves in all of Samsung's innovations at this premium experience store.

The newly-launched Samsung Premium Experience Store is designed to be a one-stop retail solution with a total built-up area of 4,241 square feet. It offers the full range of Samsung smartphones, tablets, wearables and accessories that harmoniously make up the Galaxy ecosystem. Additionally, the store will also receive customers and their Samsung devices for personalised after-sales services, therefore completing a customer's all-round Samsung experience.

Apart from offering services and products via sales, visitors of the store will be able to fully experience the Galaxy ecosystem through multiple refreshing experiential zones set up within the store's spacious and open concept area. For example, the Virtual Reality (VR) station combines Samsung's latest and most innovative VR product, the Gear VR, with a large and gorgeous display in its latest flagship, the Galaxy Note8, to truly immerse its visitors in one wholesome and entertaining experience. The best part is visitors will get to enjoy these experiential setups for free.

Samsung will also be hosting some promotional activities. To find out more details on the activities, please visit:
http://www.samsung.com/my/offer/mobile-ses- pavilion/

Nikon Announces New AF-S NIKKOR

The brand new super-telephoto lens is great for sports and wildlife photography

Nikon Malaysia recently announced the new AF-S NIKKOR 180-400mm f/4E TC1.4 FL ED VR, a super-telephoto lens that excels in sports and wildlife photography.

A first for a NIKKOR lens made for Nikon SLR caleras, the AF-S NIKKOR 180-400mm f/4E TC1.4 FL ED VR uses a built-in 1.4x teleconverter to cover a broader range of focal lengths. Thanks to that, this lens can easily switch to a focal length of 560mm by using a lever, so you don't need to switch it out for another lens. Moreover, it has a tripod collar ring that is useful for when you need to switch between horizontal and vertical orientation. The zoom ring also remains easy to use even while holding onto the tripod collar.

"This marks another first in our books and is certainly not the last as we continually strive to turn impossibilities into possible solutions, pushing the boundaries of innovation to suit the demands of the market. Harnessing the built-in teleconverter on top of Nikon's super-telephoto zoom lens, the new AF-S NIKKOR 180-400mm f/4E TC1.4 FL ED VR has the ability to capture sports, events and wildlife in true lifelike brilliance at an increased reach without having to break posture, making it a true powerhouse for serious field photographers on the prowl for maximum versatility," said David Ng, Managing Director of Nikon (Malaysia) Sdn Bhd.

The new lens is designed to better track and acquire subjects in view, by delivering improved autofocus performance, which is achieved with the help of an enhanced drive control algorithm for the AF motor. In addition, it uses Vibration Reduction to have a shutter speed that is 4.0 stops faster. To keep captured images sharp and vibrant, the lens also has a Nano Crystal Coat, along with other anti-reflective coating to suppress ghosting and flare.

Nikon has confirmed that the AF-S NIKKOR 180-400mm f/4E TC1.4 FL ED VR will be available in March 2018. Also, while retain pricing in US Dollars was revealed (USD 12,399.95) but local price has not been confirmed yet.
www.nikon.com.my

Western Digital Expands Mid-Range Enterprise Hard Drive Offerings

With the rapid need for faster and larger capacities, Western Digital is set to release the Ultrastar 7K8 8TB

Western Digital Corporation is expanding its portfolio for enterprise customers with a new, mid-range series of 4TB, 6TB and 8TB air-based hard drives. The new products enable corporate data centres having set sizes smaller than found in hyperscale environments to harness the power of data across a broad spectrum of Big Data applications, such as analytics and distributed file systems.

Western Digital leads the high-capacity enterprise hard drive market for hyperscale and cloud environments with its 10TB, 12TB and 14TB drives, where the company's HelioSeal helium-sealing technology is required for the highest capacities and densities to deliver the lowest TCO. However, many applications have small data sets or benefit from optimal performance from implementation of a cluster of lower capacity, air-based hard drives. Many traditional data center systems still rely on moderate capacity points for RAID-based block-and-file systems.

Available immediately for qualification, the new Ultrastar 7K6 supports 4TB and 6TB capacity points. It also utilises a new 4-disk, enterprise class, air-based design. The new products provide up to 12 percent faster performance than the Ultrastar 7K6000 and is designed for traditional storage and server applications, as well as distributed and scalable computing, including block-and-file storage architecture. Later this quarter, the company will deliver an Ultrastar 7K8 8TB solution. The 4TB, 6TB and 8TB offerings will be ready for volume ramp during the second calendar quarter of 2018, with Western Digital's media cache and flash-based non-volatile cache (NVC) implemented to improve write performance. These new enterprise drives will be available in either SAS or SATA interfaces and provide an enterprise-class MTBF rating of 2M hours.

www.wdc.com

Acer Talks Of Amazon Alexa In 2018

Acer also announces new V6820M/i 4K UHD projector that works with Amazon Alexa for intuitive control and operation

Acer has announced that Amazon Alexa will be coming to select Aspire, Spin, Switch and Swift notebooks, as well as Aspire all-in-one PCs starting from Q1 2018. Amazon Alexa will initially be available in the US via an update through Acer Care Center, while wider support is expected to be rolled out mid-2018.

Enabled by Intel Smart Sound Technology, an integrated audio DSP (Digital Signal Processor) built to handle audio, voice, and speech interactions, many of Acer's latest notebooks and desktops will support Amazon Alexa and respond to voice commands quickly, while offering high fidelity audio without impacting system performance.

With Amazon Alexa, owners of compatible Acer notebooks and desktops can get more done by asking Alexa to check their calendar, create lists and answer questions; be entertained by asking Alexa to play their favourite music, podcasts or audiobooks; and manage smart home devices by controlling lights, thermostats and home appliances through voice commands to Alexa.

In addition, Acer's new V6820M and V6820i 4K UHD projectors will be among the first of its kind to support Amazon Alexa. Now part of the smart home, consumers will be able to control the projector after enabling the Acer Projector Smart Home skill by asking Alexa on a device like the Echo or compatible Acer PC, "Alexa, turn on the projector," "Alexa, select HDMI as the projector source," or "Alexa, change projector display mode to bright."

Exact specifications, prices, and availability may vary by region. To find out about availability, product specifications and prices in specific markets, please contact your nearest Acer office or retailer.

www.acer.com

TEKA TEKAN, Malaysia's First Live Interactive Game Show

unifi strives to deliver innovative content to their customers nationwide and the first step comes from TEKA TEKAN

Telekom Malaysia Berhad unveiled 'TEKA TEKAN', a live interactive game show on its newly rebranded video streaming service, unifi TV. 'TEKA TEKAN', will be broadcasted on HyppSensasi HD (Channel 116) from Mondays to Fridays at 8:30pm and is also available for viewing on the unifi playTV app.

The game show is open to all unifi TV customers, allowing them to win just by tuning in to the show. All they have to do is grab their unifi TV's remote control and answer five questions during the live game show by pressing the # button and then the corresponding coloured button on their remote control for the answers.

To make things livelier, the game show will be hosted by four local celebrities, namely Acong Sweet Child, Farouk Hussein, Shuib Sepahtu and Anas Ridzuan. TEKA TEKAN is also brought to you by Huawei, the sponsor for this first ever LIVE interactive game show. In conjunction with TEKA TEKAN's inaugural airing, HyppSensasi HD is also offering free viewing in order for all their viewers

to participate in the amazing TEKA TEKAN game show, and to also enjoy other local entertainment programmes exclusively on HyppSensasi HD.

"We are very excited to be the first to produce an exhilarating, unique and never before seen LIVE interactive game show in Malaysia, exclusively on unifi TV! With daily cash prizes of up to RM20,000 to be won, that's a whopping RM100,000 every week! Your evenings will never be the same again, you and your family can now be entertained and participate in this fun interactive game show to stand a chance to win cash prizes, right at the comfort of your own homes, true to TM's promise of life made easier," said Jeremy Kung, Executive Vice President, New Media, unifi. ◼

tekatekan.unifi.com.my

U Mobile Offering New Benefits

30-day free JOOX VIP subscription and more in the cards

Malaysian telco company, U Mobile, has recently announced that it will offer its prepaid customers with free 30-day JOOX VIP subscription. Besides that, customers of the company's UMI 36 and UMI 26 plans will also get to enjoy high speed internet and unlimited data for WhatsApp and WeChat, as well as unlimited data for music streaming via Music-Onz.

For just RM36 a month (not including GST), UMI 36 users will get 7.5GB of data at 4G speeds, 7.5GB of data for video streaming on Video-Onz, and unlimited data to stream on YouTube daily – as long as it's between 2am to 10am in the morning. As for UMI 26 (RM26/month) users, they get 2.5GB of data at 4G speeds and 2.5GB of data for Video-Onz, but no unlimited data for YouTube. Both packages

will have unlimited data for music streaming, Wechat and Whatsapp.

In addition, by adding the Unlimited Power Prepaid pack, users for both plans will also get unlimited data for Facebook, Instagram and Twitter via App-Onz. Below is a quick chart of updated offerings for the two packages. ◼

www.u.com.my/prepaid/UMI

	UMI 36	UMI 26
Fee (no GST)	RM36/month	RM26/month
Free JOOX VIP	Yes	No
Total Data	15GB (7.5GB internet + 7.5GB Video-Onz	5GB (2.5GB internet + 2.5GB Video-Onz
Data for Music	Unlimited	Unlimited
Data for Whatsapp/Wechat	Unlimited	Unlimited
Data for YouTube	Unlimited (from 2am to 10am daily	N/A
Data for Facebook/Twitter/Instagram	Unlimited (with Unlimited Power Plan)	Unlimited (with Unlimited Power Plan)

Linux Malware Targets Smart Devices

The Linux malware IoT Reaper aims for routers and IP cameras. Smart devices have become the target of malware creators

Networked devices were probably amongst the piles of Christmas presents last year. Unfortunately, the manufacturers continue to be terrible at securing the devices.

The IoT Reaper worm is a successor to the Mirai that infected networked devices in December 2016 and started DDoS attacks to a hitherto unprecedented extent. IoT Reaper focuses on networked cameras and routers, exploiting at least ten different vulnerabilities, which have since been resolved by the respective manufacturers. After infecting a vulnerable system, IoT Reaper looks for other susceptible hosts. Each infected end point is a part of the botnet, able to receive instructions from the control server and be used in the future for DDoS attacks, or for sending spam.

Mirai and IoT Reaper are only two examples of malware that aims for smart gadgets. There is nothing astonishing about the choice of target, considering that the IoT market is growing exponentially. Those who plan to purchase networked products should therefore keep in mind the following points.

Updates: Security updates and patches should be done as soon as possible, this is because vulnerabilities are exploited as soon as they become known.

Isolation: Where possible, IoT devices should have an in-house network that is separate from the normal WiFi network. We recommend using guest networks for them.

Inform: Customers should keep themselves updated about the vulnerabilities and manufacturers must actively seek solutions when in doubt.

Smart but vulnerable: Networked devices such as Netgear's Arlo are potential gateways to the home network for hackers

❌ Data Theft Of The Month

MINECRAFT: DATA OF SEVEN MILLION USERS AFFECTED

A Minecraft forum has warned its users about a potential hack. Through a security gap in the forum software, not only did the attacker infiltrate scripts, but possibly read the data as well. Although passwords are not saved in clear text on the servers, it is better for users to change their password immediately, especially if it is used across multiple services.

HETZNER SOUTH AFRICA LEAKS CUSTOMER DATA

The South American subsidiary of the web hosting company, Hetzner, was sloppy in the safety of its configuration interface, KonsoleH. As a result, attackers were able to read FTP and database passwords in clear text, as well as the customers' email data. As a result of this case, Hetzner has informed that it wants to store passwords only in an encrypted form in the future.

DISQUS: DATA OF MILLIONS OF USERS IN CIRCULATION

The company Disqus, which provides a discussion platform for websites, has been hacked into, causing a database with user information of 17.5 million users to be stolen. User names, email addresses as well as passwords were stolen. Although the incident happened in 2012, it has only become known now.

Apple's FaceID Hacked

The security company, Bkav, has hacked into the access control FaceID of Apple's iPhone X. What's more, the researchers had also produced an artificial mask, which reproduces the face of the iPhone owner. Apparently, the hacking experts merely required photos of the afflicted party. Details on what course of action Apple intends to take is yet to be disclosed, nor has there been response from Apple yet.

Millions Install counterfeit WhatsApp

Malicious programmes continue to creep their way into the Android App Store of Google Play over and over again. The latest case is that of a fake version of the WhatsApp Messenger, which has been downloaded and installed by at least a million users. The creators of this version use ''WhatsApp Inc.'' as the manufacturer name, which is the actual name of the original WhatsApp provider. This was made possible by adding a Unicode space character to the name. Google Play identified it as a new provider and obviously authorised its use. The App was blocked once user reports started coming in, but this incident clearly shows how vulnerable even seemingly secure software directories are.

Umpteen banking Trojans in circulation

Security experts of CheckPoint and SentinelOne warn of banking Trojans, which are in circulation in large numbers. The malware from the CoreBot and Boleto families infects systems in order to spy on access data of bank accounts such as PINs and One-Time Passwords. In particular, it spreads via prepared Office documents or Java programmes. Neither of the families are new, as they have been actively causing trouble for quite some years now. There are also banking malware like the QakBot and Emotet, which use functions of WannaCry ransomware and spread further in the network via SMB releases, according to Microsoft.

Danger Barometer

Security company Bkav proved that Apple's FaceID can be easily hacked, leaving the way open for hackers to infiltrate iPhone X devices

High risk

Medium risk

Low risk
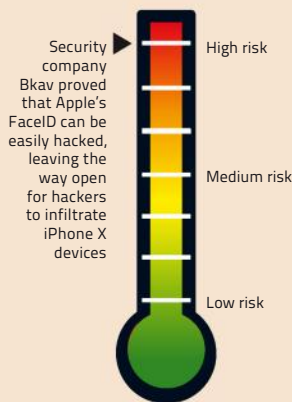
Massive growth rates in free SSL

The free SSL certificates by Let's Encrypt are enjoying increased popularity. Currently, there are 45 million active SSL certificates.

Active certificates (in millions)

SOURCE: LET'S ENCRYPT

| | Oct 15 | Jan 16 | Apr 16 | July 16 | Oct 16 | Jan 17 | Apr 17 | July 17 | Oct 17 |

Number of the Month: **17,500,000**

Discussion platform 'Disqus' lost around 17.5 million user data in 2012.

Less Tracking

The ePrivacy regulation of the EU Parliament that was passed in October 2017 is expected to ensure that user data is better protected in the future

At the end of October 2017, the parliament of the European Union passed the ePrivacy regulation, which is supposed to regulate all electronic communications with regard to data protection in Europe. This also includes internet browsing, messaging services and e-mails. Consequently, from 25 May 2018 onwards, users will have to explicitly permit cookie-based tracking. Prior to this, all that website operators had to do was provide visitors with information about the cookies. The same thing applies to promotional calls and e-mails; such messages can no longer be sent without approval. Online tracking and the creation of user profiles will therefore become significantly more difficult in the future. However, the new arrangement is also going to affect well-established features like the shopping carts associated with online shopping. Furthermore, browsers will now be expected to maintain more detailed privacy settings ('privacy by design'). Entities violating these provisions will have to pay stiff fines of up to 20 million euros (approx. RM96 million). In fact, a company that violate these provisions will have to suffer a penalty of up to four percent of its total yearly turnover that was attained throughout the world during the previous fiscal year.

Digital association Bitkom fears that the provisions of this regulation could end up jeopardising digital innovation. "This will have a massive effect on existing and future business models involving both the classical internet and the Internet of Things," said Susanne Dehmel, who is a member of the management body for legal matters and security at Bitkom. There are many that believe that the new system could endanger the financing of free press. On the other hand, there are some that praised the vote that took place at the EU Parliament, because "the advertising and tracking industry was unable to persuade lawmakers that the fundamental right to privacy was less important than the interests of the data industry."

The ePrivacy regulation builds on the General Data Protection Regulation of May 2016. It also applies to companies that operate outside the EU, but which process the data of EU citizens.

Audiothek – "Netflix For The Ears"

ARD's Audiothek app has been released and is now available in Apple and Google Play's app stores. Audiothek was produced in collaboration with the other public service broadcasters, offering segments from 560 serials and 20 categories. For example, this collection includes radio plays, interviews, comedy pieces and satires. Among the many useful features offered by the app are the option of creating playlists and a function that can be used to search for segments. It also includes a download function, so that you will be able to enjoy short-run contents when you're offline.

AMD Ryzen Becomes Mobile

With the Ryzen desktop processors, AMD has managed to outpace competitor Intel to some extent. Now, AMD is trying to use the 'Raven Ridge' Ryzen 7 2700U and Ryzen 5 2500U CPUs to do the same thing in the laptop segment. Both of these are quad-core devices with eight threads and Vega graphics chips. Along with a TDP of 15 W, they are part of the fiercely-contested mainstream performance category. HP's 15.6-inch Envy x360 notebook – which can be folded down into a tablet – is one of the first devices to feature a Ryzen 5 2500U, an 8GB RAM and an NVMe SSD that ranges from the level of 256 GB onwards.

PayPal Offers Free Collective Account

With MoneyPool, PayPal is now offering the option of creating a joint account for friends and acquaintances. To do so, a PayPal user would have to use an app or browser to set up a MoneyPool page in his account; the corresponding link can be shared via SMS, WhatsApp or social media. After that, other PayPal users would also be able to transfer money into the collective account. The account overview of the person who creates the account contains a real-time and precise list that provides information about the current status of the collection drive, sum involved and the names of the donors. The function is to be made available with immediate effect.

Power Media Player For Windows MR

CyberLink has launched a new app for Windows Mixed Reality headsets. The 'Power Media Player MR' plays regular videos, 360°-contents and 3D-360°-contents. YouTube features have also been integrated, so that users will be able to find and enjoy VR contents without leaving the app. CyberLink will also be offering a playlist containing the 500 best VR videos on YouTube. According to CyberLink CEO Dr Jau Huang, the goal is to ensure that users "enjoy an exciting and novel experience, just like when they saw their first movie."

Chrome Blocks Annoying Advertisements

Google is continuing to implement measures against the unfair and irritating practices of the advertising industry. A feature that blocks redirect ads had been announced for version 64, but it has already been released for the current version. In the past, such advertisements were able to successfully circumvent pop-up and ad blockers. They managed to pull this off by playing a certain trick. Mainly, the site that had been called up by the user will either be closed or re-opened in a new tab and advertisements were then displayed in the original tab. Such a form of advertising is especially troublesome when you're using mobile devices, because the task of closing tabs becomes more inconvenient under such circumstances. Google has therefore decided to toughen up its approach. In the past, users had to call up the advanced settings in order to be able to use the new function. They were then required to access the list of Chrome flags and switch the "Framebusting requires same origin or a user gesture" option over to "activated". The upcoming version 64 of the browser is supposed to activate this function automatically.

Amazon Stealthily Curtails Prime Benefits

On 8 November 2017, online mail order company Amazon changed the benefits that its users could receive with a Prime membership. This only affects accounts that were created from this date onwards; existing accounts will not be affected. Essentially, the option of sharing accounts with family members has been curtailed. According to the new rules, only one additional person (instead of four) will now be able to benefit from free and speedy shipments. These changes were made without any announcements, but some of the other reforms were indeed announced. End users can now make some money doing delivery for Amazon in selected countries too. According to Amazon: "You can earn up to 64 euros (approx. RM309) for a 4-hour delivery block, and use the Amazon Flex app to monitor your earnings." However, this particular service probably won't be able to fill in for full-time employment. The corporation is going even further in the USA with Amazon Key, which allows users in 37 cities to use the app to open their doors from anywhere for delivery men.

Sheep View: Sheep That Work For Google Maps

In order to ensure that the Faröe Islands in the north Atlantic will finally be seen on Google Street View, the residents of the Islands strapped panorama cameras onto the backs of their sheep. Since November 2017, it has been possible to use Google Maps to view several locations on the archipelago. This can be done through 'Sheep View' and normal StreetView recordings found at www. visitfaroeislands.com/sheepview360
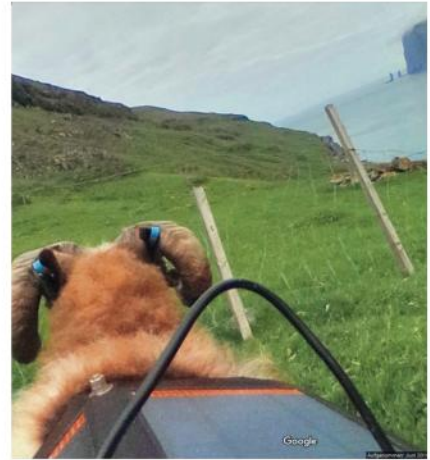
IKEA Presents Ceiling Lamp Featuring OLED Technology

Thanks to the 700-lumen 'Vitsand' lamp, IKEA has become the first mass manufacturer to bring an OLED lamp into its product line-up. The brand has not provided any information regarding the origin of Vitsand's OLED technology or the service lives of the panels. Nevertheless, they are supposed to be individually-exchangeable. The new lamp costs about 200 euros (approx. RM965), and is now available.

Wireless Charging For Several Devices All At Once

The German company XLayer has unveiled a table-top charging station called the 'Family Charger Maxi'. It charges inductive Qi-compatible mobile phones or tablets and can also supply electricity to four additional devices via USB. It costs about RM335.

Milestone For Waymo's Autonomous Vehicles

Alphabet subsidiary Waymo is, for the first time ever, testing fully autonomous cars on US roads. Although Waymo employees are still in the vehicles during the tests, they are now sitting in the back seat, when previously, they were always behind the steering wheel. The cars are supposed to use the streets of Chandler (Arizona) and their test zone is limited to an area of about 160 km2. Google's associate company has already been working on autonomous driving solutions for eight years now and with the start of the field test, the Waymo team has taken a giant step towards their goal of developing totally-driverless cars.

AMD-GPUs In Intel-CPUs

When it comes to certain CPUs, Intel is replacing its own graphics chips with AMD's products. It also needs to plug a security loophole

Slender mobile devices featuring an impressive performance in the 3D department is what Intel wants to achieve with a recently-announced CPU/GPU combination, which is supposed to belong to the 8th Core generation (Coffee Lake). Specifically, devices from Intel's high-performance H-series are to be used as CPUs. The new 'embedded multi-die interconnect bridge' (EMIB) connects the CPU to an AMD GPU chip, which uses a very fast and compact HBM (high bandwidth memory).

All the elements are supplied with electricity by an integrated energy management system, which distributes the voltages dynamically depending on the load. The CPU/GPU model is supposed to be able to display even modern 3D games just like a full-fledged (and typically bulky) gaming notebook, but it's also supposed to fit into Ultrabooks with a thickness of less than 20 millimetres.

However, Intel has received some bad news on the security front. According to some researchers, they were able to hack into Intel's management engine. This engine – which can be found in several systems featuring Intel chip sets – then makes it possible to gain full access to the system in a manner that cannot be detected by the OS. For example, passwords that have been typed in could be intercepted and transmitted via the network, without the operating system realising what's going on or being able to prevent it. Employees working for Positive Technologies were able to use a USB cable that was connected to the computer to attack the debugging-oriented DCI interface. They also found out that this interface is, in violation of Intel's recommendations, active in certain devices.

As far as the memory department is concerned, Intel recently introduced the Optane SSD 900P. Since the PCIe plug-in card uses a 3D-XPoint memory, it manages to attain very high speeds of 2,500/2,000 MB/s for reading/writing, as well as response times (IOPS) that lie far beyond the realm of what is normally available for private use. And last but not least, the longevity of the device is supposed to be several times higher than that of conventional flash memories. The 480 GB plug-in card is available for prices ranging from a hefty RM3,500 onwards, while the 280 GB variant can be obtained for prices ranging from around RM2,075 onwards.

Facebook Offers To Delete Revenge Porn

Those who fear that their ex-partners might upload nude photos of them to Facebook can now prevent such photos from being spread, at least in Australia. All they have to do is fill out a brief questionnaire at https://esafety.gov.au, which will then link to Facebook. Once this stage has been reached, the user has to send the image in question to himself during a Facebook Messenger session. The user can then mark the image and submit a complaint. Once this has been done, the case file reaches the Facebook Safety Team. Employees then look at the image and decide whether it fulfils the criteria for deletion. If it does, parts of the image are masked. Alternatively, the whole photo could be deleted and a hash value of the image is created. If a third-party user now uploads the file, the protective mechanism jumps in, and the image is automatically masked or deleted. After Australia, the procedure is expected to be rolled out in the USA, Great Britain and Canada. No information has yet been released regarding whether and when this facility is to be made available in other countries.

Technilexicon: TPU

Artificial Intelligence doesn't think like humans or compute like software. Therefore, Google has developed the Tensor Processing Unit, a hardware that is optimised for AIs *By Jorg Geiger*

Artificial Intelligence, AI in short, has become a part of our everyday routine for some time now. Not many are aware of its use except when it acts as a support for voice assistants in smartphones and smart home speakers, or as automatic image recognition in a software. But even Google Search cannot work without machine learning, a sub-area of AI. A technology called RankBrain has been helping in sorting search results for about two years with roughly 15 percent of the daily queries being new for Google, meaning they have never been asked by any user. The RankBrain algorithms search for samples in unknown search queries and link them with semantically similar terms. Finally, the search machine itself attempts to learn and aims to deliver suitable answers to queries not submitted till now. In its computer centres, Google uses its own specially developed processors called Tensor Processing Units (TPUs) to do this.

Superhuman intelligence

The TPUs that were first publicly revealed by Google in 2016 got their name from the in-house software library TensorFlow. Their main purpose is the acceleration of AI algorithms that are based on this Open-Source library. The TPUs experienced their first popularity as a hardware platform for AlphaGo, an AI that has defeated the best Go players in the world. In contrast to Chess, the development of a Go software on a professional level was considered impossible for many years. The further development of AlphaGo Zero has taught itself the game with the help of the rules. It achieved a professional level three days later and three weeks later it was as good as its predecessor, which had to be trained elaborately with millions of professional parties. It turned out that the AI had previously limited the learning of human

move.

After six weeks, AlphaGo Zero was unbeatable. Google's AI runs on TPUs whose hardware components appear inconspicuous, as they come in the form of plugin cards to be installed on the server.

These cards exchange data via PCI Express and use a DDR3 RAM as memory internally. Google combines each of the four TPUs and interconnects hundreds of such units into one rack via SATA.

Accelerator for neuronal networks

As compared to the normal CPUs, TPUs are specialised for application of artificial neuronal networks. They are made up of many interconnected mathematical functions and parameters that emulate the human brain, nerve cells (neurons) and their connections (synapses). Similar to our brain, a neuronal network needs suitable input. For example, one can train it to recognise languages, images or even the rules of Go.

An artificial neuronal network includes various layers of neurons. Each neuron uses a weighted sum of output values of the linked neurons in the preceding layer. Correct weightage is the key to success in machine learning, but that weightage must be found first and it may simply mean many floating-point operations. In this discipline, graphics processors are actually the best choice. But to sort the search results accordingly and to predict moves, a neuronal network no longer needs high precision of the floating-point calculations. This process needs a lot of multiplications and additions of whole numbers instead. The Google TPU's core (see image on the right) is made up of a computing unit, which is a matrix with 256 x

256 units. It works with 8-bit whole numbers, achieves a computing performance of 92 billion operations per second and stores its results in the results memory. The block diagram shows that the matrix occupies only around one quarter of the chip area, while the remaining components are responsible for constantly providing the computing units with new data. However, the TPUs do not fetch the command by itself, since the commands come from a connected server (host) via PCI Express. Even the final results are returned via this path. A First-In-First-Out memory module delivers the weightages that are required for calculations for the neuronal network directly into the computing unit. Since there are hardly any changes for a specific application, a connection via DDR3-RAM is sufficient here. Intermediate results land in a 24 MB large cache and are always pumped in a loop, straight into the computing unit.

TPUs are specialists
for running the artificial neuronal networks, the heart of every AI

45-times faster than a CPU

The CISC-command set (Complex Instruction Set Computer) of the TPU can process complex commands, which are only about a dozen. And only five commands are necessary for the multitude of required operations - which includes reading commands, executing matrix multiplications or calculating activation functions. By optimising AI-calculations, TPUs become significantly faster than CPUs (45-times) or GPUs (17-times). At the same time, they work in a more power-saving manner. The performance of a TPU can be further increased with the help of simple actions, with the installation of GDDR5-RAM alone capable of tripling the current computing power.

Photos: Google LLC.

Tensor Processing Unit (TPU)

The success of Google's artificial intelligence seems spectacular. One reason is the special hardware developed by Google that can accelerate neuronal networks much more effectively than CPUs or GPUs. What's amazing is that the Tensor Processing Unit is partially using standard PC components. Specifically, it operates via a SATA plug-in card and communicates with other TPUs via PCI Express.

TPUs in the Google computing centre

Since 2016, Google has been using interconnected TPUs in its own computing centres (left). The individual processors are mostly used as four-pack.
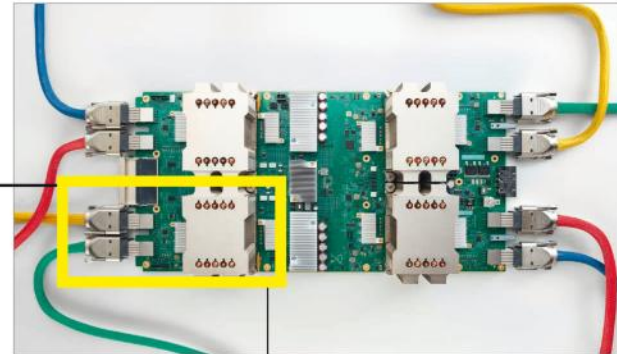
Structure of a TPU

Fast addition and multiplication is the strength of the TPU. The neuronal network relies on the matrix as the core in the unit is responsible for it. It occupies about one quarter of the chip area, while the remaining space is used for fast delivery of input data that comes via PCI Express and DDR3 RAM. The calculated results are sent back to the server via PCI Express over the host interface.

- ☐ Input/Output
- ☐ Cache
- ☐ Computing units

DDR3 DRAM block

14 GB/s | DDR3 DRAM interface | 30 GB/s | First-In-First-Out storage

30 GByte/s

PCI – Express 16-times interface

14 GB/s | 14 GB/s | Host interface | 10 GB/s | Cache for calculations | Unit for data processing | 167 GB/s | Computing matrix (neuronal network)

Result storage

Calculation of the activation functions

167 GB/s

Normalisation unit
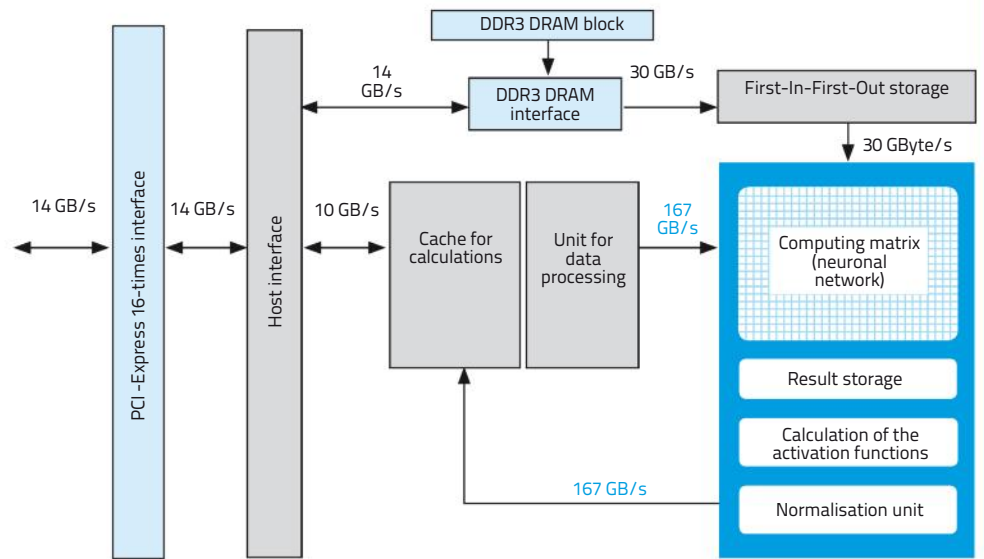
Comparative power consumption

A relative comparison of the performance of CPUs, GPUs and TPUs per Watt consumed shows the superiority of the TPU.

Computing power/Watt

CPU	1
GPU	2.9
TPU	83
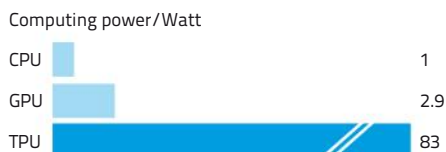
Speed duel with CPU and GPU

TPUs calculate 225,000 predictions per second, for the neuronal network. CPUs and GPUs fail to keep up with the same.

Prediction / Second

CPU	5,482
GPU	13,194
TPU	225,000

"Our AI works without any human input"

Prof. David Silver, Chief Programmer of Google's AI AlphaGo Zero

DJI MAVIC AIR

The latest drone from DJI is equipped with more features and made with extra care for security and performance, while keeping the size relatively small and compact for easy transporting By Rikco Shim

Extensive portability

The Mavic Air is super light at only 430 grams, but that is not all. Its arms and the propellers can be folded neatly onto the sides as well, bringing down the footprint of the drone to nearly the size of a smartphone.

Built for performance

Housing a 1/2.3-inch CMOS sensor along with a 24mm F2.8 lens, the Mavic Air gives you the ability to capture high-quality photos and videos. It comes with an indented three-axis mechanical gimbal that is suspended from dampeners to reduce vibrations, offering enhanced protection and steady shots. It can also capture 12-megapixel still images and employs a new HDR algorithm to enable you to capture stunning pictures, no matter the time. If that's not enough, it can capture 4K videos at 30fps with a maximum bitrate of 100 Mbps as well. 1080P slow-mo videos can also be shot at 120fps.
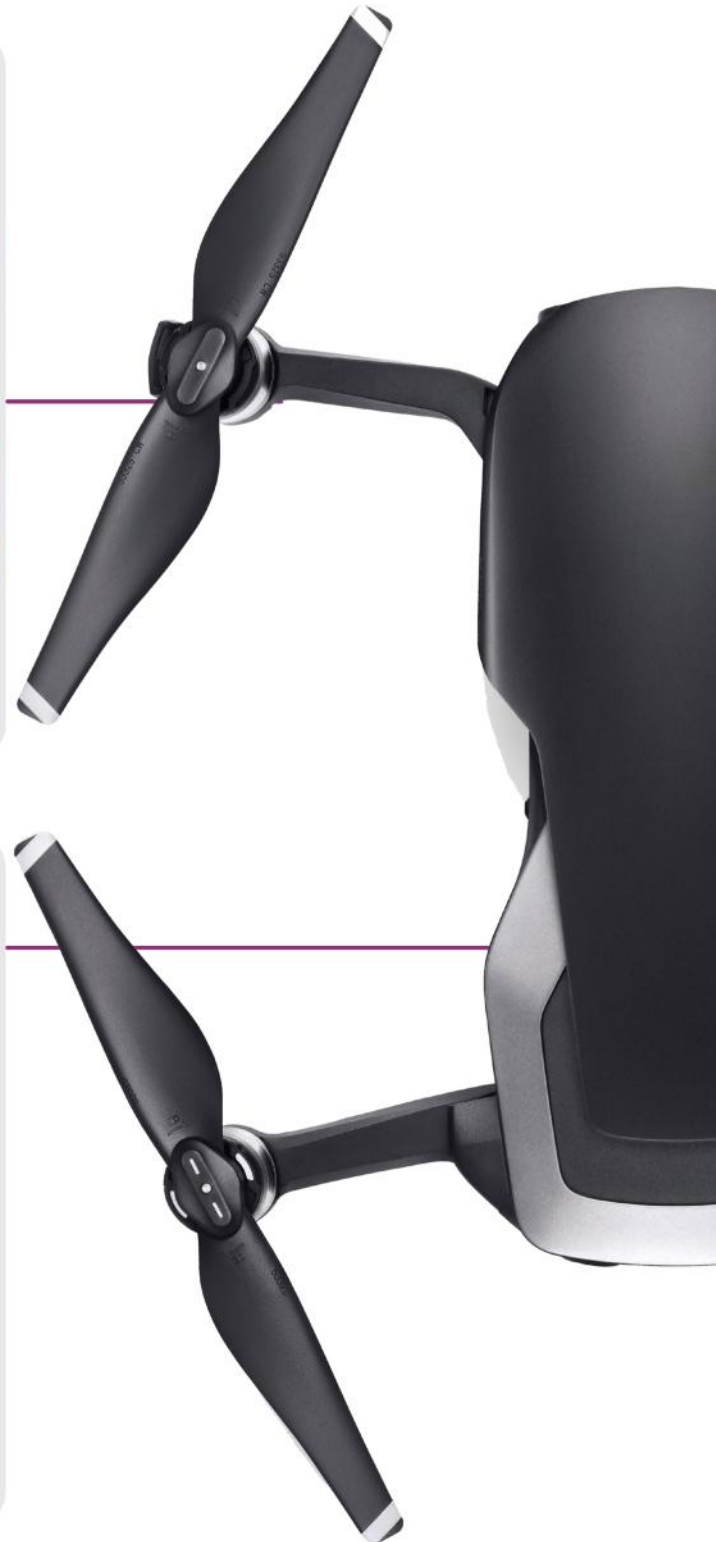
Safety first

Equipped with better computing capabilities and optimised algorithms, the Mavic Air will fly smarter and safer through obstacles and terrain. Data will be gathered from seven onboard cameras and infrared sensors using FlightAutonomy 2.0 to recreate a 3D map of its environment for precise hovering and flight performance. Along with an improved front and dual rear cameras, it can sense obstacles of up to 20m away.

Maximum creativity

With its intelligent camera system, almost anyone can take amazing pictures, regardless of your drone or photography skills. With modes such as the new Sphere panorama that stitches 25 photos together and recreates a 32-megapixel panoramic image, you can shoot mountaintops, the ocean and a variety of cityscape pictures with no issues. Utilising the QuickShot video modes introduced in previous drones, the Mavic Air will be flying with a predefined flight path that will keep the subject in frame all while piloting itself. Thanks to modes such as Rocket, Dronie, Circle, Helix and two new ones named Asteroid and Boomerang, you can create videos that have great effects without professional piloting or editing skills.

Showing you the world

The Mavic Air has a flight time of up to 20 minutes, and can fly in windy conditions of up to 36 kph and as high as 5,000m above sea level. Utilising the new detachable remote controller, you can fly the drone up to 4km!

1973
Mouse of the Xerox Alto
The mouse of the first computer with graphical interface is a strong reminder of designs today

1960   1970

1963
The Engelbart Mouse
The prototype of the first worldwide mouse, made of wood

CHIP TIMELINE
The Mouse

The eponymous design of the computer mouse has hardly changed in over 50 years. But the technology inside has indeed changed, from the use of metal wheels to rubber balls, and now laser sensors By Patrick Hannemann

Once upon a time, computers were exclusively controlled via text commands in the command line; it was less intuitive and took a lot of processing time. This operating concept lasted till the 80s, although Douglas C. Engelbart was already working on a pointer device for screens in 1963. With the help of his drawings, Bill English created a prototype made of wood with a button that same year. There were two metal wheels for the X and Y coordinates, on the lower side. By tilting the

1984
Macintosh Maus M0100
The cheaper successor of the "Lisa Mouse" was attractive for users. Apple retained this 1-button design for a long time

2018
Ergonomics & Gaming
Mice today are available in numerous models, some with over 15 additional buttons or in ergonomic designs

1980   1990   2000   2010   2020

1999
Optical sensors
Microsoft's IntelliMouse includes new technology developed by HP, driving out the mechanical mouse completely

device, these wheels could be individually controlled in order to travel along the axes. Engelbart introduced a further developed model in a public presentation in 1968, which was also later known as "Mother of all demos".

The first computer with graphical user interface was first introduced in 1973. Apart from the keyboard, a mouse with three buttons could be used together with the Xerox Alto. To change the cursor position, the movements were transferred to rollers via metal spheres. The basic principle did not change much till the 90s.

Initially, the mouse remained a niche product. It gained more popularity as Apple introduced it with the Macintosh 128k in 1984. The model M0100 individually cost 15 dollars instead of several hundreds of

dollars. Thus, the mouse became affordable not only for the common man, but it also became a vehicle for Apple's own graphical interface. In related commercials, it was called: "If you know how to point to something then you will also know how to operate [the system]." Just like the smartphones and tablets that appeared much later, Steve Jobs was not the inventor of the mouse, but he made it really popular through skilful marketing and clever product design. Microsoft followed with its own mouse for Windows 1.0 in 1985 and from there things snowballed. The fuzzy rubber ball was completely replaced by optical sensors and laser as these were more precise and not having to clean the internal mechanics made it dispensable. Wireless models appeared next, promising more

freedom of movement while working, while touchpads were created as a substitute for the mouse in laptops, allowing the user to use the computer without a flat surface while travelling. But office jobs with long working times brought typical complaints like the infamous "mouse finger" with it. Since then, many methods were used to optimise the design ergonomically, such as vertical alignment of the casing or trackball to control the cursor. However, attempts met with moderate success. Meanwhile, touchscreens became very popular, particularly in the private domain as they are more intuitive and do not require any additional hardware. But whether touchscreens can completely eliminate the mouse from the offices, remains questionable.

Click. Me.

Developers and programmers are reviving a concept that was once reviled as totalitarian. And it's being done not for a brave new world, but for profit-maximising customer retention

By Richard Meusers

Barely 30 years after his death, psychologist B.F. Skinner is gaining new fame because of his theories about behavioural conditioning in Silicon Valley. According to his concept, programmed learning makes it possible to mould desired behaviours with the help of rewards and positive reinforcement. Skinner undoubtedly had the purest of intentions while making these statements, but they were rejected by critics as a depiction of the negative utopia of a totalitarian social order. After all, he provided no answer for the question of who should have the right or the omnipotence to specify the respective framework conditions.

However, it's now beginning to look like this question has been answered. Mark Zuckerberg and the other technology companies use their world-spanning networks like Facebook, Twitter or Instagram to reach billions of people and shape their daily routines. The fact that they can do this so successfully is also due to a very simple operating principle. All of these 'social' networks contain a reassurance-based feedback loop made of postings, likes and comments – a loop that exploits the human desire for recognition.

According to a study, an average smartphone user looks at his mobile phone about 90 times a day, and checks for new messages 35 times. All in all, every mobile phone owner presses, taps, swipes and

strokes his way to 2,000 interactions every day. In order to ensure that things stay this way and the level increases even further, attempts are now being made to use the power of individual algorithm-based behavioural analysis to strengthen this addiction.

"Make your app even more addictive"

A start-up called 'Dopamine Labs' is unashamedly soliciting customers with the slogan "Make your app even more addictive". The name 'Dopamine', a neurotransmitter that is released within the brain when a person obtains a reward of some kind, says it all. A sense of well-being is generated, and everyone wants more of that. At the end of the day, the issue of whether the scenario involves praise, a piece of chocolate or a Facebook 'like' is purely immaterial, because each one of these cases forms the basis for a spiral of addiction. Dopamine Labs promises to raise user retention and user interaction levels by up to 167 percent. The idea is to personalise apps, so that it will be easier for them to 'mould' the respective user's behaviour. Ultimately, the objective is obviously to make more profits, and app providers make a larger profit when users use their programmes for a longer period of time, or more intensively. "And they all simply end up organising a time-based arms race," said to Dopamine founder Ramsay Brown. Brown explained that one of the

most popular techniques is called 'variable reinforcement' or 'variable rewards'.

The principle involves three stages: A trigger, an action and a reward. For example, a push notification that informs the user that somebody has commented on a Facebook photo is the trigger; opening the app is the action; and the reward could be a 'like', or the sharing of the posted message.

Trigger, action, reward

Brown goes on to explain that these rewards trigger the release of dopamine in the brain and make the user happy, or even euphoric. "You will only be able to convince people to use the app more and more frequently if you can control when and how you give them this little jolt of dopamine." But the trick is that we don't always get a 'like' or a retweet when we check our telephones. App developers use artificial intelligence to forecast the best time for the 'pay out' on the basis of the user data that has been collected. However, the user cannot foresee the rewards. According to Brown, this leads to compulsivity, which in turn emanates from the fear of missing out on something.

At Dopamine Labs, the data processing that is necessary for this operation is carried out by an artificial intelligence, which its creators have tellingly named 'Skinner'. Brown explained: "We created it in order to be able to learn about the structure of human motivation." This approach is supposed to have an edge over competing offers, because they merely approach the matter superficially, from the perspectives of marketing and advertising. "Skinner is now independently gathering enough data to be able to make useful observations related to the modification of human behaviour," he added.

Black magic: Spirits that I've summoned...

Sounds scary, doesn't it? Some of the experts and programmers in Silicon Valley are beginning to feel the same way, because recent developments related to social manipulation are giving them the creeps. Napster founder and Facebook founding president Sean Parker is now warning about the consequences of the use of social media. At the beginning of November, he stated during an interview with news website Axios that he regretted the role he played in turning Facebook into what it is today. He claimed that right from the very beginning, it was all about how they could get as much time and attention as possible from the users. "So, we had to give the users a little dopamine kick every now and then. For example, this would happen when another user responded to the posts with a like or a comment," he said. This feedback loop of endorsement exploits a certain weakness in the human psyche. Given the fact that there are two billion Facebook users, this is quite a problem. "It literally changes the relationship that the users have with each other and with society at large. God only knows what this is going to do to the brains of our children," he added.

Even though Parker's time at Facebook is twelve years behind him and he's trying to do something that's important, his memories are nevertheless instructive. After all, they rip through the corporate claim of being driven solely by the lofty mission of turning the world into an open and networked place, setting up a community and bringing all people closer together. And Parker isn't alone in his scepticism either. There are now a lot of voices that are trying to draw attention to the negative aspects of these developments. One of these critics is Mr François Chollet, leading AI expert at Google. According to him, Dopamine Labs' "addiction

Apps that counter app-addiction

Menthal
This Android app performs a personalised behavioural analysis of the smartphone usage.
http://menthal.org/

Moment
'Moment – Screen Time Tracker' is an iOS app that monitors user behaviour and helps reduce the time spent on the iPhone.
https://itunes.apple.com/us/app/moment-screen-time-tracker/id771541926

Offtime
Offtime analyses telephone usage and examines which apps are used at what times, and how often. It blocks SMS messages, calls and messages for a specified period of time.
http://offtime.co

And another thing:
'Are you a nomophobe?' questionnaire from the Iowa State University (in English).
https://www.news.iastate.edu/news/2015/08/26/nomophobia

> **"God only knows what this is going to do to the brains of our children."**
>
> **Sean Parker,** Napster co-founder, first Facebook president

formation" concept is one of the "saddest things" he has come across in recent days. "Those who tinker with AI have a certain power over others, so they should conduct themselves in a responsible way," Chollet insisted. There are also other initiatives and interest groups like 'Time Well Spent' that want to help users use their smartphones both responsibly and sparingly. Such an arrangement would help ensure that the net-savvy individual is not at the mercy of the arts of seduction practised by social networks and app programmers. Although nomophobia (which stands for 'no-mobile-phone-phobia') could soon be classified as a proper addictive disorder, every single individual can indeed take certain actions to bring his excessive smartphone usage under control. All you have to do is be mindful of a handful of points. According to Lisa Pont of the Centre for Addiction and Mental Health in Toronto, mobile phone owners should pay more attention to how much time they are spending with their devices, and what they're doing with them. Her recommendations are to keep telephones far away from the bedroom, deactivate alerts, nail down technology-free family times (including dinnertime), and - last but not least - parents should lead by example.

In the final analysis, the principle formulated 500 years ago by Swiss physician Paracelsus applies to the use of smartphones as well. "The quantity is what makes the poison." Indeed, that seems to be the case with social media usage.

Cracked Protection

A security loophole has been discovered in WPA2. But what can attackers do with it, who's affected by KRACK, and what you should do about it right now?

By Andreas Th. Fischer

For many years, security experts and specialist magazines have been insisting the use of the WPA2 encryption when we're using wireless networks. However, a dangerous security loophole has now been discovered in this very standard. Many people were quite rattled, especially after getting warnings against the use of WiFi and to only use wired connections for things like online banking activities. But what's really going on when it comes to the 'KRACK' security loophole? Who does it affect and what should you do about it?

Let's start things off with an all-clear signal: KRACK probably represents a tiny risk for you at the personal level. A significant risk only arises in special situations in which specific companies or individuals are to be spied on in a targeted manner. The first reason behind the all-clear signal is the fact that a wireless network can only be attacked successfully at close range. This means that a hacker will only be able to carry out the attack if he is within range of your wireless network. A KRACK attack cannot be

launched from a distance via the internet, and it cannot jump from one device to another like a worm or a virus.

Understanding how KRACK works

The second reason behind the all-clear signal relates to the structure and function of the KRACK loophole, which was discovered by scientists at the Catholic University Leuven (KU Leuven) in Belgium. The abbreviation stands for "Key Reinstallation Attack". WPA2 uses a one-time key to encrypt the wireless transfer of data and both the devices that are part of the connection must know this one-time key. When hackers attack a wireless network connection, they essentially intercept part of this key, which in turn ensures that the router sends the key once again after a short while. However, this is not supposed to happen in situations involving a one-time key. If it does happen, the hackers would be able to compare parts of the encrypted code and gradually calculate the key that is being used. They will then be able to read the

transferred data.

This risk affects practically all devices that follow the official WPA2 specification. This applies to Android smartphones and tablets, as well as Linux computers.

Microsoft computers, Apple computers and iOS devices are only affected to a partial extent, because the two manufacturers decided right at the initial stage that they weren't going to comply with the specification during the implementation phase. They also responded quite quickly, and promptly released extra security patches for vulnerable systems. Linux distributions like Ubuntu, Fedora and OpenSuse were also fixed quickly. However, the loophole also happens to be particularly severe in Linux's case, because it uses the value '0' when it re-sends a key.

Use SSL/TLS security

There's also a third reason for the all-clear signal and that is because several internet connections are already being encrypted using SSL or TLS. Consequently, even if an attacker manages to insert himself into a WPA2-encrypted connection and access data, he would only be able to view data that has already been encrypted. For example, all connections involving online banks, most online shops and several login-based websites are already encrypted.

You will know that the browser connection is encrypted if you see the abbreviation "https" in front of the address of the visited website. Firefox, Chrome and Edge also display a green lock in front of the web address. If you click one of these locks, you will be able to view additional information regarding both the current encryption system and the certificate that has been used. A certificate confirms that the website that is being visited really does belong to the company whose address is shown in the browser.

On the other hand, connections that do not feature SSL/TLS protection are unencrypted, and can be intercepted easily. If you want to prevent this from happening, you go and source for a VPN (virtual private network) service. If you decide to use such a service, all the data that reaches or is sent by your PC will first go through your VPN provider via an encrypted tunnel; only then will the data be allowed to flow into the unencrypted internet. Of course, this kind of solution isn't really necessary for day-to-day needs (such as keeping up with the news). Many chat programmes now use encrypted connections as well, including WhatsApp. Under such circumstances, an attacker won't be able to spy on your communications just by infiltrating the WPA2 connection.

Implement countermeasures

Nevertheless, you should definitely plug the KRACK loophole by updating as many of your wirelessly-networked devices as possible. However, note that many manufacturers no longer provide updates for older hardware. Fortunately, most router providers have announced or already released patches.

Also, it wouldn't be a good idea to switch over to the older WEP and WPA encryption standards. After all, WEP was cracked several years ago. In fact, it's possible to decrypt the transferred data packets with the help of relatively simple tools. With WPA, the KRACK attack allegedly even makes it possible to potentially cause direct damage by modifying part of the transferred data.
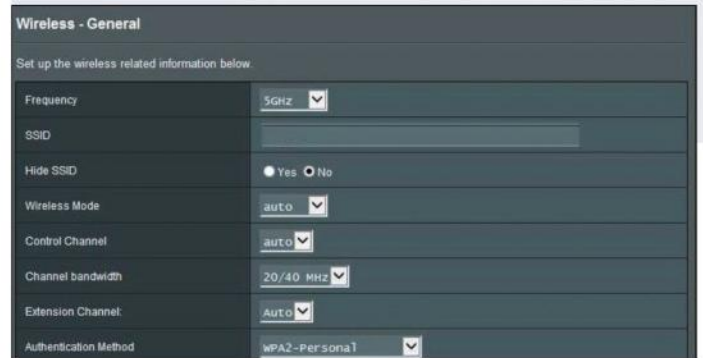
Would-be security with WPA2
For a long time, a combination of WPA2 and a good password was considered to be very secure. Those days are gone, but the danger is usually not significant
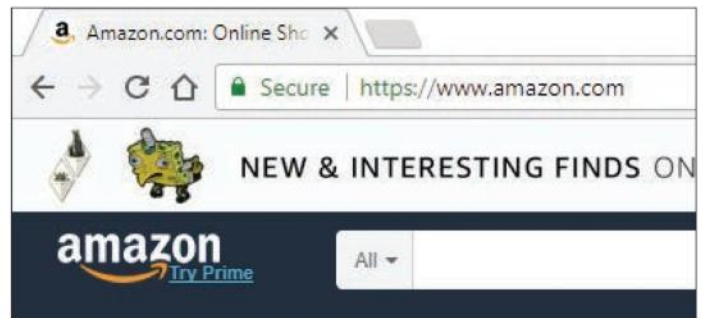
The green lock and the "https" that are in front of a web address indicate that the connection is encrypted

The details of an SSL certificate specify who it was issued by, and who it was issued to

Devices affected by KRACK

The Computer Emergency Response Team (CERT) maintains a continuously-updated list of manufacturers affected by KRACK, as well as their wireless network-capable devices. The list can be found at https://www.kb.cert.org/vuls/id/228519. A certain amount of general information is followed by the actual details in question, which can be found under "Vendor Information". Click "View More" to view the entire list. Once you reach this location, you can use the [Ctrl]+[F] key combination to run a search for your device's manufacturer; all you have to do then is click the entry in the "Status" column. You will then receive information about the respective provider's efforts to plug the loophole in its products. The data also contains some links leading to additional information on the manufacturers' websites.

The Ghost In The Machine

Is Facebook stealthily listening in on our conversations? It might seem like it's technologically unrealistic, but this particular rumour has persisted for a while. In reality, Facebook doesn't even need to do this

By Felix Knoke

It's the same old story. Like a bolt from the blue, Facebook throws up an advertisement for a product that you recently mentioned for the first time. You may have spoken about with friends, when you were offline or when you were on the telephone, but you definitely didn't mention it on the net. When like this happens, there can only be one explanation: Facebook listened to your conversations with the help of your phone's microphone, then paired a suitable ad to you.

Truly remarkable coincidences

Reports like that have once again been piling up on social media in recent weeks. The scenarios in question involved things like an exotic coconut opener, a brand-new cough drop or a mutual acquaintance who had fallen completely off the radar. However, the cat food case was the one that became most famous. In this case, YouTuber Neville set a trap for Facebook, by deactivating the app on his mobile phone and kept using the device to make repeated statements about his urgent need to buy cat food. Two days later, Facebook actually did display a cat food advertisement! Could this really be a coincidence?

The 'proof video' was viewed more than a million times on YouTube, and it produced a flurry of reposts, copycats and agitated reporting, especially in right-wing blogs and local TV stations in the US.

Things were intense that Facebook felt compelled to release a statement that read: "Facebook does not use mobile phone microphones to customise advertisements or change the newsfeed." According to the social media giant, Facebook does indeed access the microphone, and it also requests for the permission to access it. However, the company claims that it only conducts such operations for 'specific functions that require audio' (such as video recordings or the feature that identifies audio contents), in order to semi-automatically fill up status updates with song tracks, films or serials. It claimed to only

listens in if you actually want the company to do so. In fact, this is what Facebook's advertising director Rob Goldman said on Twitter in November: "I run ad products at Facebook. We don't – and have never – used your microphone for ads. Just not true."

Insurmountable obstacles

Distrust of Facebook runs deep, so none of these reassurances or denials are going to help. However, there are all kinds of arguments as to why these stories couldn't possibly be true. A commercial electronic eavesdropping operation of this nature wouldn't be feasible using current tools. Furthermore, it would also be impractical and inefficient.

In order to do something on this scale, Facebook would have to record conversations around the clock and send them to a computing centre for analysis. No mobile phone battery would be able to survive such a scenario for too long. Also, it would only be possible to conduct such an operation if there was a piece of software that could extract meaningful information from the endless stream of day-to-day noises. Furthermore, it would also have to be able to do this on a massive scale.

This is not even mentioning the fact that such a course of action would also be prohibited, for none of the world's data protection laws would allow a secret wide-scale surveillance like this. And if an attempt of this nature were to become known, it would lead to a PR disaster with massive consequences for the company.

## Ghost lights in the chamber of data horrors

However, the strongest argument is that Facebook really doesn't need to listen in like this. It has long been in possession of data that would make it possible for the company to legally make sense of the wishes and needs of its users (and beyond). According to research done by ProPublica, Facebook has the ability to divide its users into at least 52,000 different categories. For example, Facebook knows that I have close friends whose birthdays are coming up, that I live in an expat-family and that I just came back from a trip two weeks ago. It shouldn't surprise anyone that Facebook knows surprising things about its members and proceeds to sell this information to advertising companies. In fact, that's the company's whole business model!

Perhaps this is precisely why these eavesdropping rumours have come into being. They are a manifestation of unease about the present age, in which the individual is losing control over circumstances and the reality of social media is beginning to go beyond our boundaries; companies like Facebook stir up our privacy to get better grasp of our behaviour. Consciously or otherwise, we're always fending off these attempts at manipulation. It's simply part of the age we live in.

However, those who imagine that mobile phone microphones are being used for surveillance are essentially trying to use outdated tools to make sense of the new reality. In this day and age, commercial control is a lot subtler (and sillier).

The fact that we sometimes lack the means to be able to accurately pigeonhole such matters is a direct result of the data companies' secretiveness. They don't want to disclose what they know, or how they use their knowledge.

However, when it comes to properly dealing with such surveillance, knowing is the first half of the battle. Once you gain the right kind of knowledge, the ghost in the machine will start looking like a mundane entity. And maybe it won't seem as scary either.
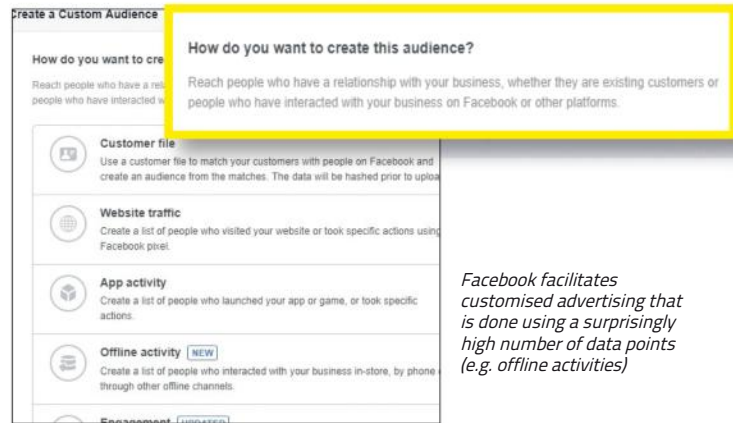
Facebook facilitates customised advertising that is done using a surprisingly high number of data points (e.g. offline activities)

Like the wild west

Vienna-based data researcher Wolfie Christl has been examining the marketing of privacy by companies for several years. His book, 'Networks of Control', provides a detailed description of the commercial trade in data

Almost every week, I get questions about whether or not Facebook analyses conversations. For the most part, people are unaware of the extent to which information about our daily routines is being analysed, combined and exchanged between individual companies.

All it takes is for a friend to buy a certain product; alternatively, it would also be enough if he develops an interest in it, runs a search for it online, visits a corresponding website, uploads a photo containing the product or simply stands in the vicinity of a specific shop.

We are increasingly being monitored digitally by companies. Many people end up feeling uncomfortable because of this, and try to connect the dots between their mode of behaviour and the corresponding digital effects. We also know that people behave very differently if they feel that they're being watched.

This new form of tracking is usually carried out in a hidden form and encompasses vastly different spheres. In most cases, we wouldn't have a hope of being able to understand how our actions end up affecting advertisements, offers and prices.

More and more of the devices that we use on a day-to-day basis are collecting digital information about our mode of behaviour. The companies do what they want; in fact, even experts are often unable to find out which pieces of data are being exchanged between companies. It's like the wild west.

Such uncontrolled collection of data must stop. The ePrivacy regulation could provide a remedy, but only if the industrial lobbies don't soften it up and disable it within a few weeks.

Facebook's advertising director Rob Goldman denied on Twitter that Facebook was stealthily listening in on conversations

Landing point
Underwater cable
Marea underwater cable

Virginia Beach, USA
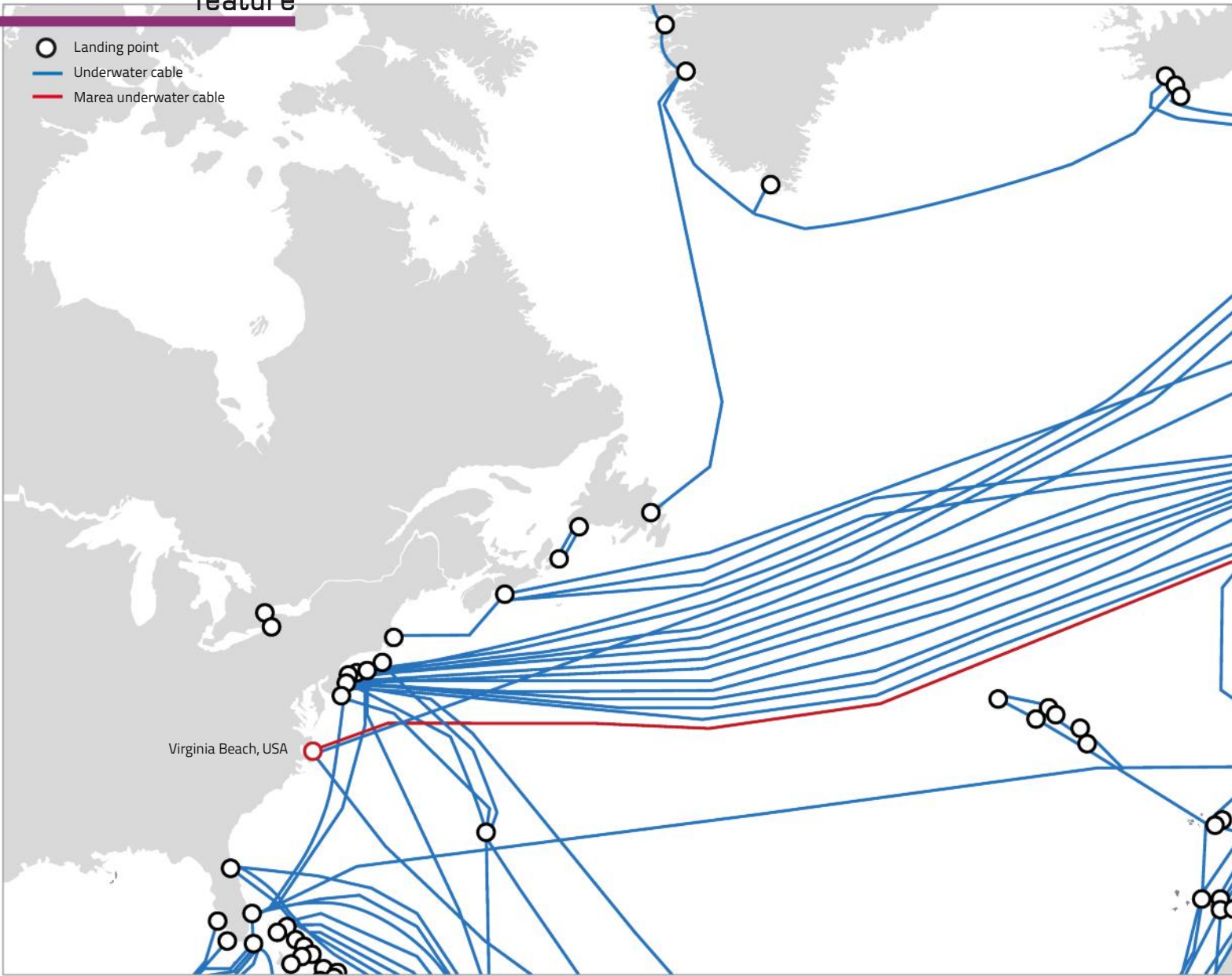
Backbone Of The Internet

The submarine cable industry is no longer booming as it did in the Dotcom era. In order to satiate your hunger for data, big Internet companies are now installing their own cables. This promotes progress, but the infrastructure of the Internet is changing in their favour as well

By Felix Knoke
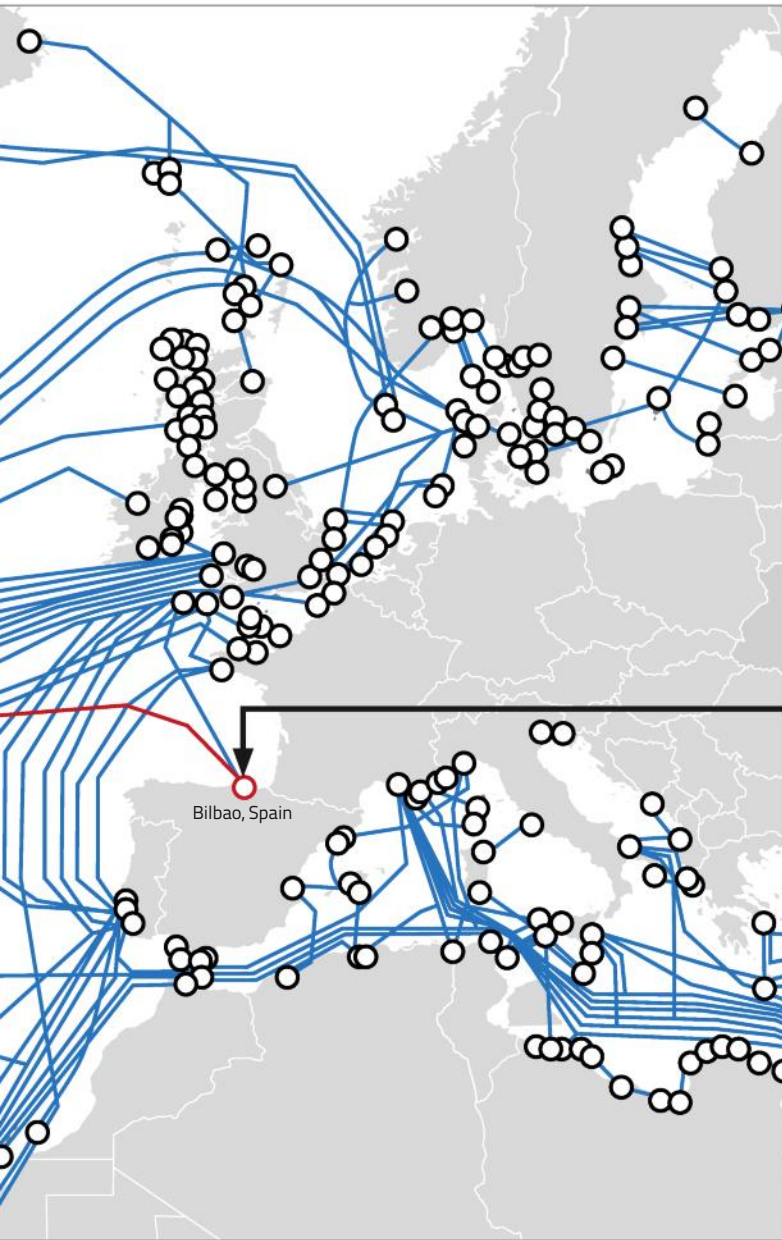
The first of its kind

The underwater cable, Marea, is the first trans-atlantic cable in 15 years. It is 6,605 kilometres long, weighs 4,600 tonnes and initially as fast as 160 terabit/s. A milestone – if only just a beginning

The cable trifurcator

The most important cable components from left to right: Line Terminal Equipment (LTE), Branching Unit, Amplifier

Bilbao, Spain

Landing point

Sheathed cable

Branching unit

Light cable

Amplifier
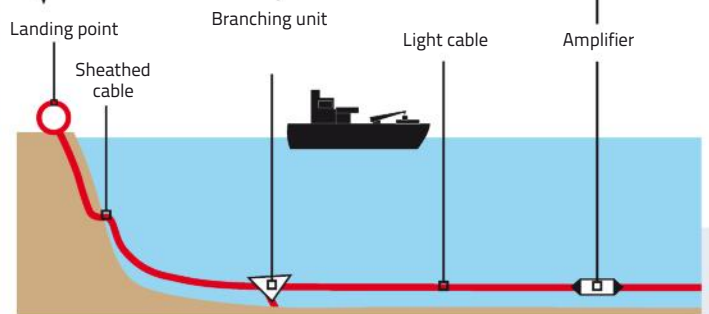
A s Facebook and Microsoft announced the completion of Marea on 21st September 2017, it was more than a technical milestone. With 160 terabit/s of capacity and a length of 6,605 kilometres, it is the most efficient cable of its kind and the first trans-atlantic cable since the bursting of the Dotcom bubble. It was a symbol for an industry in a state of upheaval, a sign that the era of underwater cables has only just begun.

Data noise at a depth of 8,000 metres

Underwater cables have determined the shape and performance of the Internet for 20 years now. On their way through the Internet, 99 percent of all international data streams and 90 percent of all data packets pass through a fibre glass at the bottom of the sea at least once. And this will continue to remain so, as there is currently no alternative to an underwater cable when it comes to bridging long distances over water.

Admittedly, it represents an immensely technical and financial effort. Typically, a cable costs hundreds of millions of US dollars. In addition, planning and construction takes at least three years, while millions of dollars must be spent on maintenance, upgrades and repair works. Despite all this, this solution is still cheaper, more reliable, more flexible and, most importantly, much more efficient than taking the path around. Only overland cables between Europe and the Middle East and Asia are faster and cheaper.

In comparison, the fastest high-throughput satellites (HTS) achieve bandwidths of 500 gigabit/s. This is 0.03 percent of the Marea capacity at higher costs, reduced flexibility and over twice the signal runtime (140 ms instead of 60 ms latency). In the foreseeable future, satellites are therefore only a plan B for remote regions, which cannot be accessed otherwise, and for situations with special communication requirements like navigation. But this is also not the purpose of underwater cables,
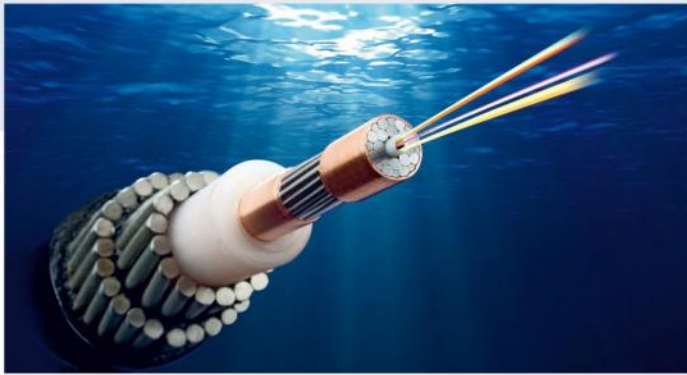
The innermost copper jacket supplies current to the repeater; individual cable breakages compensate for the intelligent power supply

For the monitoring project, Deep Web Dive, the artist looked up the Trevor Paglen underwater cable, which is supposed to have been tapped by the NSA

An individual cable for each company

From 2012 to 2016, the cable capacitance installed by the biggest content providers has increased 14 times over.

Hersteller	System	RFS	Designed capacity	Share
Google	Unity	2010	7,68 TB/s	Part
	SJC	2013	15 TB/s	Part
	FASTER	2016	60 TB/s	Part
	Monet	2017	64 TB/s	Part
	Tannat	2017	90 TB/s	Part
	Junior	2017	18 TB/s	Individual
	PLCN	2018	120 TB/s	Part
	INDIGO-West	2019	36 TB/s	Part
	INDIGO-Central	2019	36 TB/s	Part
Facebook	AEConnect	2016	52 TB/s	Main
	APG	2016	54,8 TB/s	Part
	MAREA	2018	160 TB/s	Part
	PLCN	2018	120 TB/s	Part
	Jupiter	2020	60 TB/s	Part
Microsoft	Hibernia Expres	2015	53 TB/s	Main
	AEConnect	2016	52 TB/s	Main
	NCP	2018	80 TB/s	Part
	MAREA	2018	160 TB/s	Part
Amazon	Hawaiki	2018	42 TB/s	Main
	Jupite	2020	60 TB/s	Part

Source: Own research

which are the only Internet medium that guarantees massive bandwidths with an acceptable level of reliability. This makes it interesting for big content providers, whose data centres are the true driving forces of the growth of bandwidth. They are the reason why there are renewed investments being made in new underwater cables.

20,000 kilometres under the sea

Around 430 cable systems with a total length of 1.1 million kilometers are currently installed at the bottom of the sea. Many of these are hundreds of kilometres long, while others span almost the entire globe. Incidentally, there were only about 150 of these systems five years ago.

2013 saw the beginning of a cable boom, after which only old cables have been extended since the end of the Dotcom period and the bankruptcy of several cable companies. The market has really grown since 2016. 100,000 kilometres of new cables have been installed in 2017, where there were only 21,000 kilometres the year before. And this is how it will continue to proceed, with 33 new systems set to be built in the coming years, especially between China, the USA, Australia, India and Southeast Asia.

Underwater cables are the backbone of the Internet. They are being built – apart from the bubble times – where bandwidth is required. Since this can change quickly, the physical structure of the Internet is also undergoing a change. "Individual firms can have a big influence on the demand," said underwater cable expert, Alan Mauldin from TeleGeography. New Apps, the geographical placement of data centres and new network topologies can change the global data flow. In order to secure oneself against these fluctuations, companies such as Facebook, Amazon, Google, Microsoft and Tencent aspire for more control and co-determination rights to the design, the routes and loading points of cables.

With their own cables, they cater to their requirement for bandwidth and reliability themselves and at the same time, stir up a neglected market.

Insatiable hunger for bandwidth

The global requirement for bandwidth doubles every two years. Contrary to popular opinion, it is cloud computing and the data traffic between computer centres that determine the growth in particular, and not the Internet of Things (IoT) or even Netflix, (they mostly create local data traffic). However, with the constant boom of computer centres, the structure of data requirements is changing as well, becoming geographically multifarious. But even the (varying) cable customers can report completely different claims regarding connection technology, availability and price. The cables that were installed in the Dotcom years cannot satisfy these claims anymore, because their expandability has been exhausted. This is why new cables, like the Marea, are currently being installed.

The underwater expert, Mauldin, has estimated that the important cable routes via the Atlantic and Pacific oceans could be overburdened within a mere five years. If sufficient cables are not installed until then, there is a threat of congestion in data traffic or malfunctions and instability. Secondly, any of these cables can become weak if a fisherman decides to ignore the prohibited zones once more or if an anchor has podded a cable from the sea floor. Studies prove that sharks no longer play a role in cable damages, but environmental protection is the Achilles' heel of the industry.

Having said this, one must be cautious with such prognoses. This is because the increase in bandwidth cannot be predicted so accurately. Even certain killer Apps and services can shoot up the demand precipitously or delay data flow. In addition, there are many big companies that until now have always been excellent customers of bandwidth - that rented wavelengths or even entire glass fibre pairs from cable providers. These companies are now joining forces and building their own cables, which has far-reaching consequences. Between 2012 and 2016, Google, Facebook, Microsoft and Amazon alone have increased their individual cable capacitances by 14 times over, said Mauldin. That is a huge shock in the cable economy and indicated golden times for cable manufacturers, cable-laying vessels and consulting firms.

And there is still some more food for thought for cable experts, with the leasing of cable capacitances possibly becoming uneconomical soon. This is because the transfer price for data drops relatively quickly when compared to the conveyance costs. Those who cannot afford an individual cable would be better off hiring elsewhere.

To the horizon and no further

For years, the cable industry lived off the investment delirium of the Dotcom era. More than a million cables were installed at that time, mostly by huge Telco consortia or short-lived Internet companies with flapping wallets. However, excessive euphoria, planning insecurity and economical mistakes led to the bursting of the cable bubble in 2002. It wasn't till 15 years later that another trans-atlantic cable was installed: The Marea.

It wasn't that the industry came to a standstill. But instead of installing new cables, the subsequent expansion of already installed cables was expedited – with unbelievable success. "In the last few years, there were extensive improvements in the Wet Plant as well in the Dry Plant," said Samia Bahsoun, underwater veteran and founder of Capwave Technologies, a network company (see interview in next page). As a Dry Plant, cable components are indicated in the industry over the water, as a Wet Plant under water. "The data rates could be raised from 10 gigabit/s to 100 gigabit/s and even up to 400 gigabit/s per data channel using new modulation and error correction methods." Simultaneously, the number of available data channels per glass fibre rose dramatically through constant scaling down. Mind you, these were improvements that could be applied to already existing cables.

This was an enormous technological piece of luck, because through the exchange of hardware in the Dry Plant alone, the data rates of the cables could be drastically increased.

Powerfully drilled dinosaurs

As a result, we're seeing a bandwidth explosion. Even the capacitances of cable dinosaurs like the Sea-Me-We-3 cables have increased by a thousand-fold. At 39,000 kilometres, it is still the biggest cable system in the world. It spans, often in a branched manner, from the North of Germany to South Korea and Australia. Upon its completion in 1999, it delivered a capacitance of 1.12 gigabit/s. And since its last update in 2015, it transmits up to 4.6 terabit/s, which really isn't an exceptional multiplication of the bandwidth.

Although rather small an improvement when compared to modern cables, it's better than nothing. When Sea-Me-We 3 ruptured between Perth and Singapore on 30th September 2017, the repair work lasted almost two months. The data traffic between Australia and Asia was noticeable delayed during this time. Only in 2018 and 2019 is the Sea-Me-

Once upon a time, cable-laying vessels were rare. Today, over 50 ships at strategic locations are getting ready to ride out. Fun fact: A cable ruptures every three days

Big cable ships bunker thousands of kilometers of underwater cables. The cable is buried in flat water, simply cast off after it reaches a depth of 200 m

Supply and demand

Bandwidth requirement increases by 40 percent every year. Two new Europe-Africa cables have been making a big impact since 2012
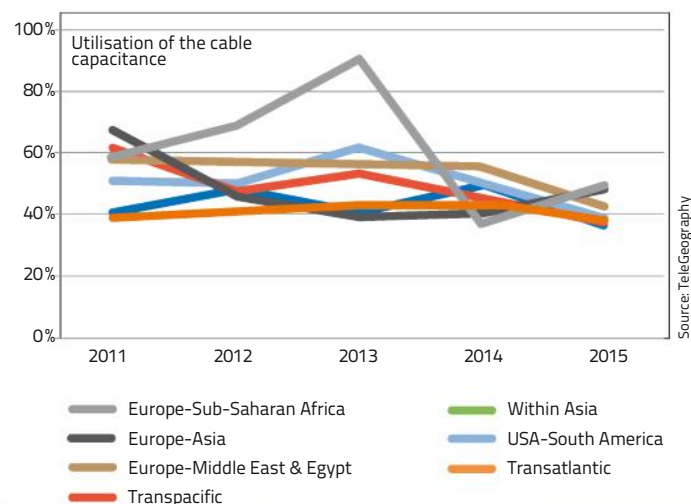
Utilisation of the cable capacitance

Source: TeleGeography

Europe-Sub-Saharan Africa
Europe-Asia
Europe-Middle East & Egypt
Transpacific
Within Asia
USA-South America
Transatlantic

A few underwater cable networks are forming in coastal areas, with cables that are divided at branching units. They are strategically placed in advance

Intercontinental string pulling

The last cable bubble burst in 2002. It boomed in Africa in the meanwhile and has started to pick up again (globally) since 2015/2016

Year	Cable	Costs (in Mill. US-$)
2010	13	2.4
2011	10	1.1
2012	22	3.3
2013	8	0.6
2014	13	0.7
2015	8	0.6
2016	14	2.4
Announaced		
2017	22	2.8
2018	18	4.2

Source: TeleGeography

We 3 expected to be replaced by new cables, which are designed to transmit at 40 and 36 terabit/s respectively. It is not expected to always be fast, but it is good to have some leeway.

Backwards into the future

Underwater cables are designed for a lifespan of 25 years, so the hardware must be appropriately resistant and reliable. That it could be adaptable is a new thought, however. Newer cable owners determined that one could create cable systems in a technically "open" manner, instead of having to open them later by means of hardware replacement.

In the year 2015, Microsoft and other Cloud providers touched on the basic cable design for this purpose. In their concept of the Open Cable System (also: Open Line System), the continuous adjustment to the changing hardware needs are included from the beginning. Cloud providers could agree upon "exponential and almost perfect service availability" only that wa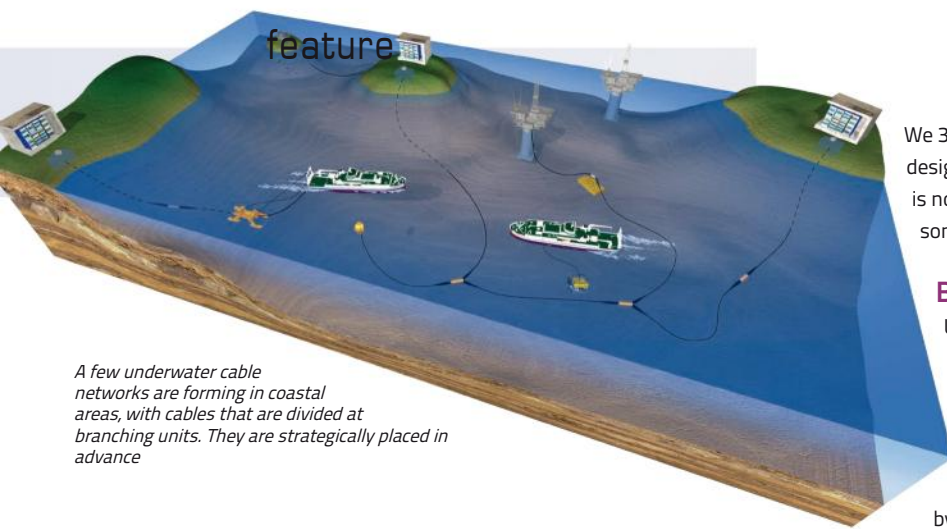y, said Microsoft's glass fibre chief, Jamie Gaudette. The first of this type of open cable is the Marea. Meanwhile, other content providers are trying to determine/define what a cable is.

The era of the underwater cable

"We want thorough control over the network," expressed Jamie Gaudette in a speech. And with Marea, Microsoft now has this control, with other content providers determined to follow their example. They also have another motivating factor: Security. Cables are not without faults and securely transporting a bit from point A to point B requires at least three-way cables, according to Gaudette; a lot more remains to be built.

For those who don't know, Marea is Spanish and means "tide". It's a word that feels like an announcement, one that says "The major cabling of the world has only just begun."

INTERVIEW

Underwater cables play a critical role

Samia Bahsoun is an underwater cable veteran and founder of Capwave Technologies, a network company

> You are brilliantly well-versed with the underwater cable technology. What's new?
Since 2008, the basic infrastructure for underwater cables has barely changed. However, there were great improvements in the transmission rates and the number of usable channels via the C-band of light. Through the implementation of C+L band amplifiers, this number even managed to double itself recently. And thanks to the Raman amplification, huge amounts of data can span over 500 km of cable sections unrepeated without further amplifiers.

> Microsoft has one installed every 60 to 100 kilometres, almost 200 cables!
For a long time, the optical amplifier was the deciding component of each modern cable system as it enabled their expandability. Today, the terminal equipment is what determines the capacity building over long distances.

> What stands out for Marea?
Marea, but also Google and Facebook's PLCN, are the first cables that transmit data in the C- and L band. This is what makes it so efficient.

> What influence do Marea, PLCN or Faster have on the industry?
The content providers change the ownership structure and usage of underwater cables. They have enough money and incentive to reduce the costs of the cables and to build their control over them. This exhausts the technology and accelerates the development cycles. Also, the content providers are quick to drag the manufacturers along. From design to installation, Marea required only three years. Before that, cable installation itself took five years.

> What happens next?
For my colleague, Howard Kidorf from Pioneer Consulting, completely new transfer technologies ("multimode", "multi-core fibres") are still inaccessible. Instead, he expects improvements in the power supply and cables with more fibres. But although we are theoretically approaching the capacity limit, the nostalgic engineer in me hopes that somebody out there will try something new that takes the electricity requirements and environment into consideration.
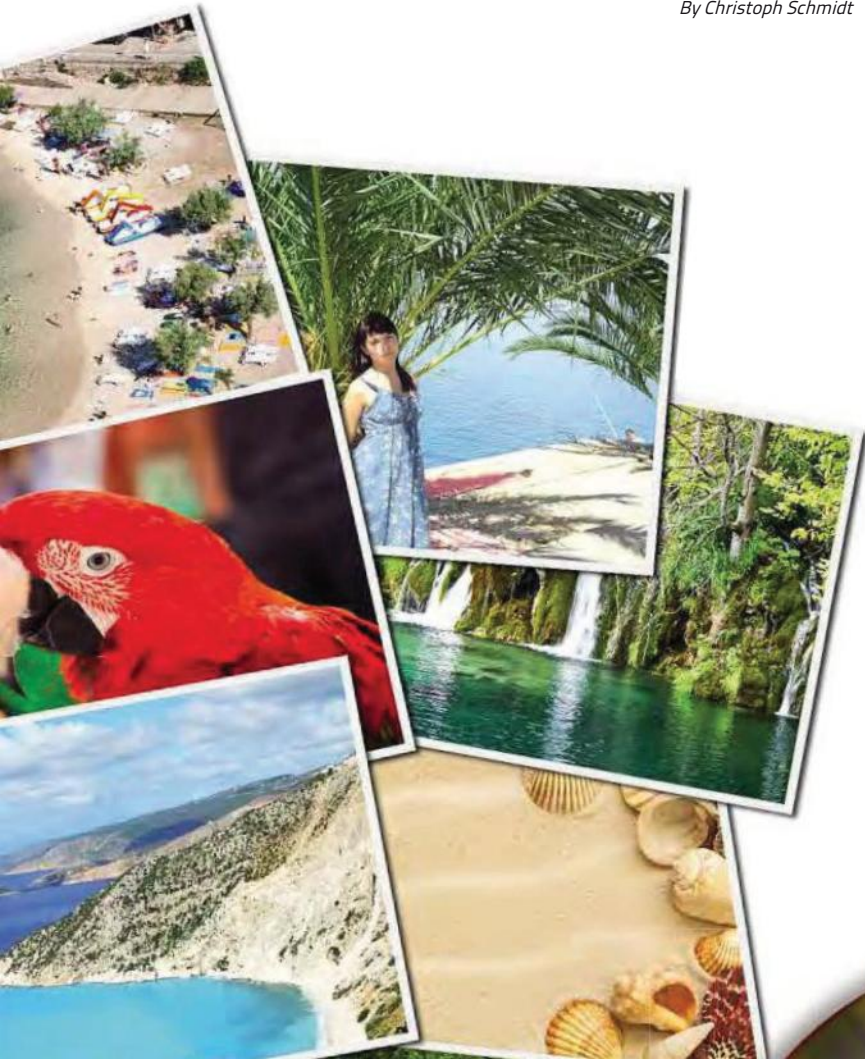
Keep Your Data Forever

Your data is under threat from many dangers, ranging from hardware damage to malware. Only a smart back-up strategy will allow you to keep photos, documents and media safe over the long term

By Christoph Schmidt

mportant personal data can vanish in a flash, often happening very quickly and always catching us completely by surprise. Such an abrupt death of data can have a variety of causes. According to data recovery company Kroll Ontrack, data is lost most frequently due to undetected storage mediums. In such situations, the drive breaks down without warning due to age or electronic damage. The second most frequent scenario involves cases in which data is lost due to devices being dropped. If the hard drive happens to be running at the time, a physical fall like that results in the reading head being dashed against the magnetic disk, and the magnetic disk is damaged as a result. Apart from this, other situations include damage due to fire, smoke or water. When it came to the data losses recorded by Kroll Ontrack in the year 2016, cases involving water damage (300 cases) were almost twice as frequent as cases involving virus attacks (171 cases). When you encounter such problems, your only hope revolves around the expensive recovery operations carried out in professional data recovery laboratories. However, even this might occasionally yield no result. For example, it won't be able to help you if an encryption Trojan has launched an extensive attack, or if large amounts of data have been written onto the storage after an unintentional delete operation.

Smart Back-Ups With System

The variety of potential problems makes it clear that every effective back-up strategy needs to be multifaceted. Files should be stored on different destination mediums that provide protection against different types of threats. Also, real-time protection against sudden hardware failures is just as important as the existence of a non-erasable copy that is stored at a secure location. The degree of protection is directly proportional to the frequency of and variety of methods employed by the back-up operations, whereby complicated and smart dispersals are much more effective than gung-ho actions, which quickly grow weak due to effort involved. In this context, the term 'smart' refers to an arrangement that makes use of different back-up types (e.g. hard drives, clouds, optical data storage etc.) in a manner that ensures that these types can play to their strengths, while their drawbacks are simultaneously balanced out by the other options.

Consequently, while you can create back-ups easily, automatically and quickly on a second hard drive, such back-ups can be deleted accidentally or destroyed by an encryption Trojan just as easily. Back-ups stored on optical data carriers are safe from both these dangers, but the cumbersome procedure is associated with frequent back-up operations. Moreover, data stored on HDDs and diskettes can be threatened by age, loss or house fires. On the other hand, cloud storage can provide protection against the hazards mentioned above, but ends up raising questions about privacy and data protection.

Data security in three stages

A good back-up plan begins with the task of organising the data in question. The best thing to do would be to create a new "My Files" folder, and use it to store all your files that really need to be backed up. Apart from this, you should also create a "Private" folder for particularly sensitive documents and photos that should never get into the wrong hands (e.g. beach holiday photos). The back-up procedures are now carried out in three stages:

If an encryption Trojan like Petya has launched an attack, the data is essentially gone. A back-up can save the day under such circumstances

Sometimes even the professionals are powerless
Destroyed hardware (e.g. due to a fire) is a frequent and – above all – abruptly-occurring cause of data loss

The CrystalDiskInfo tool displays the SMART values of drives. If there are abnormalities, you should replace the drive
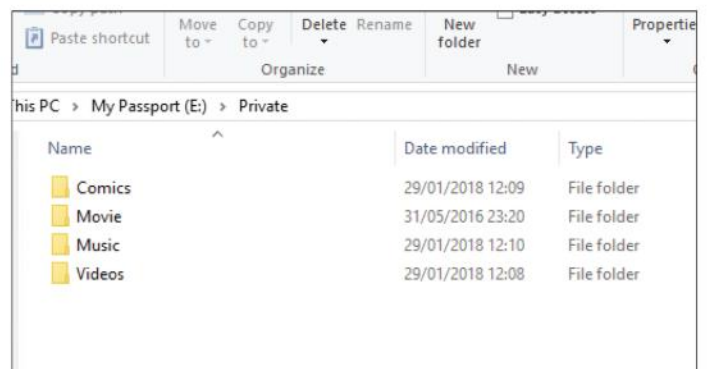
Since many installed programmes use the Windows libraries without being asked, you should create storage areas for data that you want to back up. An extra "Private" folder is helpful

Pros & Cons: Hard drives as data archives

Classical magnetic hard drives are well-suited for extensive back-ups – if you keep certain things in mind

+ Very high capacities (up to 12 terabytes) possible on a single drive

+ Back-ups and recoveries can be executed quickly, easily and automatically

+ Relatively low price per gigabyte

– Back-ups can quickly be deleted/overwritten

– Hardware defects rarely announce themselves

– Service life can vary significantly

NAS hard drives like Western Digital's Red or Seagate's IronWolf models run quietly and coolly, while also offering long service lives

Failure risk of HDDs

Cloud back-up provider Backblaze uses inexpensive consumer hard drives on a massive scale and heads off failures through a high level of redundancy. According to its statistics, a relatively high number of drives malfunction during continuous operations within the first 1.5 year. The survival rate then remains stable for a while, before falling steeply once again from the third year onwards.

Back-up stage 1: Real-time protection against hardware defects and accidents. The data is always synchronised to a second hard drive, a NAS or cloud storage. It remains accessible, which in turn necessitates the second back-up stage.

Back-up stage 2: Resistance to malware and operating errors. The data is regularly backed up on a storage medium that is normally separated from the computer, or which can't be written on by standard users.

As this necessitates user activity, it can be done when new files emerge (e.g. weekly or monthly).

Back-up stage 3: Catastrophe hazard insurance against a house fire or break-in/theft. Under this arrangement, a copy of the data would be stored outside the home (e.g. at the workplace, or with relatives). Due to the large amount of effort involved, it's difficult to create this kind of back-up too many times a year.

Below are various methods for each one of the aforementioned back-up steps. We'll start with hard drives, divided into internal, external and NAS. And when it comes to cloud services, we'll explain how you can combine them with data protection and privacy. Finally, we're going to demonstrate that there are still uses for the somewhat old-fashioned optical data medium.

HDDs: Inexpensive And Large Memories

When it comes to the quantities of data that have now become part of the new norm, there's no avoiding hard drives, which are well-suited for all three back-up stages. In addition to offering a lot of capacity at affordable prices, they are also great for quick back-ups and recoveries. However, there's a big weakness to HDDs. Although the statistical average indicates that they work for several years, some individual units can break down in just a few days or weeks after you start using them, and this cannot be predicted in advance. According to the service life statistics that cloud service provider Backblaze has collected at its computing centre, the possibility of manufacturing defects means that you should assume that brand-new hard drives are as highly failure-prone as hard drives that have been in continuous use for three or more years. The latter scenario corresponds to a period of about five years of normal use. In this scenario, although the time for which the drive is deactivated is longer than the time for which it is activated, the frequent boot-up and shut-down procedures represent an additional strain due to the long-term usage.

For magnetic disks, redundancy is a must

This is why duplicated information constitutes the most important principle of back-ups on hard drives, meaning new files are ideally stored on at least two separate drives as quickly as possible. If you're using a desktop PC, the easiest way to do this involves a second internal hard drive, onto which the data would be copied at regular intervals. This kind of data copying process can either be done manually or automatically.

You will be able to find a very wide range of 3.5-inch SATA drives. But in particular, NAS hard drives are the best choice for a data storage device, because they are designed for quiet and thrifty long-term usage, which in turn results in less heat generation and potentially longer service lives. The most well-known series of NAS models is Western Digital's WD Red, while Seagate offers similar products with the IronWolf

model range. Regardless of whether you end up choosing an NAS hard drive, or a normal hard drive that offers a higher level of performance, the longest service lives are those of HDDs that have been approved for continuous operation ('24/7') by the manufacturers, and which come with a warranty of at least three years. 3.5-inch SATA hard drives can easily be installed in a desktop PC too. All you have to do is screw the device into a free bay, connect the SATA data and power cables and format the system after it has been booted up.

HDD Defect: Respond quickly and properly

Data that is stored on two separate drives will be safe if a defect affects only one drive. However, if something like this happens, you should immediately replace the broken HDD and copy the data onto a new one.

But do be aware that the prolonged copying could end up finishing off the drive that is still functioning, especially if it's old, or has given you problems in the past. Because of that, you should always start off by copying only the most important data (i.e. the data that has not yet been stored on another medium during the previous back-up operation). Once you have done that, copy the rest of the data after a cooling-off break.

Making proper use of Windows Access Rights

Internal or permanently-connected external hard drives are not immune to accidental deletion or encryption Trojans. A certain amount of protection can be provided by the Windows access permissions. To set that up, access the Windows settings and create a standard user without administrator rights for daily tasks. Set the folder access rights so that this standard user has full access to your source folder that is to be backed up, but only has read access to the destination folders associated with the back-ups (right-click the folder, "Properties | Security | Edit ..."). Now, add another standard user for the back-ups. This user should not only have read access to the source folders, but also full access to the destination folders. The back-up software must run under the back-up user's account. This can be done in the software, or with the help of the Windows task scheduler ("While executing ... use following user account:"). Ransomware usually captures the standard account, so this particular arrangement can prevent ransomware from encrypting the back-ups. However, all this effort will be pointless as soon as the malware gains admin-rights.

This is why the second back-up stage is required. It will give you daily to monthly back-ups on an external drive that is isolated from the computer, except for the back-up passes themselves. All you would need for this is a simple 2.5-inch USB drive, but if the situation involves large amounts of data, we would recommend that you install a large and robust NAS hard drive in a 3.5-inch USB casing. Alternatively, you could go ahead and invest in one of the most convenient local back-up solutions: A NAS (network attached storage) device.

NAS: Convenient and secure back-ups

A good NAS device provides perfect real-time protection, because it will constantly back up all new files. The Synology Cloud Station and Qnap QSync are examples of good NAS. Operations of the two systems are quite different from each other, with detailed instructions to be found on the NAS manufacturers' websites. However, a NAS system can only provide protection against hard drive defects if it has at least two drives ('bays' in NAS jargon = drive slots). The 2-bay or 4-bay systems usually combine two drives to form a single RAID-1 volume, which

It's very easy to install an additional 3.5-inch SATA hard drive in a PC. Just screw it in tight, connect it, and you're done
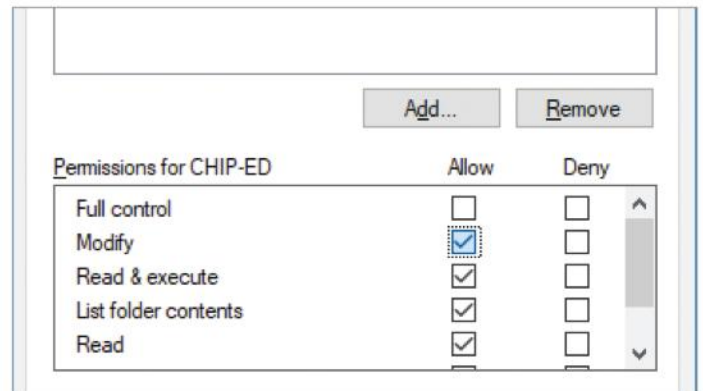
When it comes to the Windows folder permissions for the back-up destination folder, the standard user should only be granted reading access. If malware seizes the account, it won't be able to delete the back-ups

Comfort back-up
A NAS can simultaneously take care of two back-up stages, which can be very convenient for home networks with multiple PCs
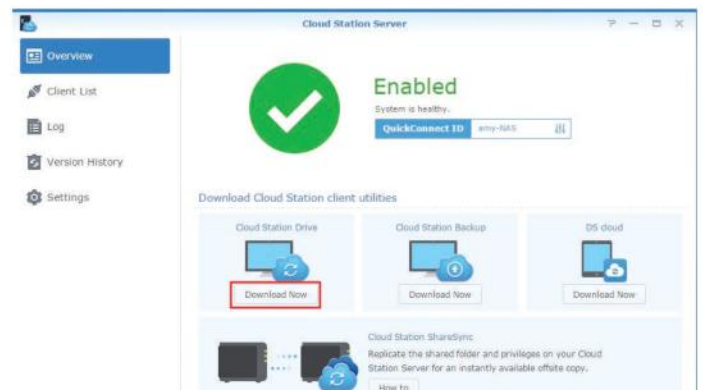
The web interface of the NAS systems can be used to activate a real-time file synchronisation facility (here: Synology CloudStation), with which the client software on the Windows PC communicates

HDD protection with FreeFileSync

The open-source FreeFileSync tool allows you to set up a continuous real-time synchronisation operation to the hard drive.
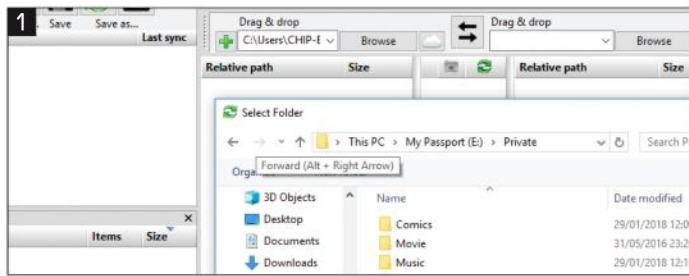
In order to use FreeFileSync to carry out a file synchronisation operation, you should first create a normal synchronisation procedure by selecting the source and destination folders, as well as the type of synchronisation …
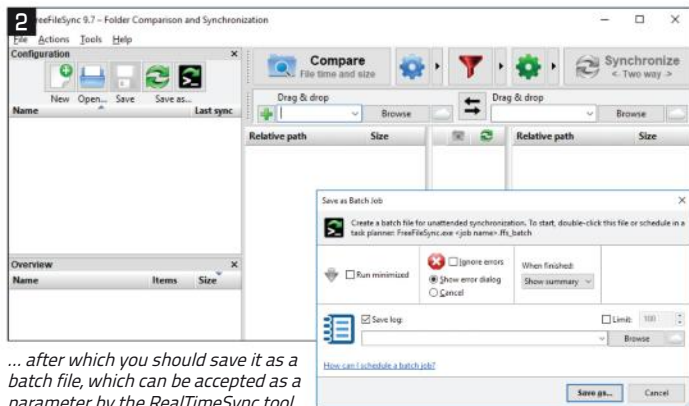
… after which you should save it as a batch file, which can be accepted as a parameter by the RealTimeSync tool
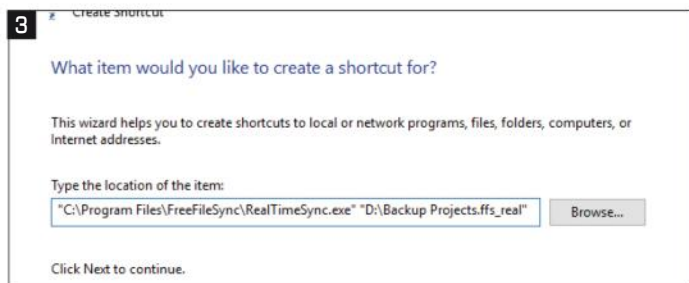
An entry in the autostart menu ensures that RealTimeSync always runs in conjunction with the previously-defined sync batch file, in order to immediately copy new and modified files into the destination folder

Back-ups with version history

The Areca Backup tool creates back-up archives, which contain older versions of the backed-up files as well

simultaneously saves each file on both drives.

However, instead of doing this, you can also choose to activate the second back-up stage (malware resistance) immediately. You can do so by setting up both hard drives as separate volumes, instead of setting them up as a RAID-1 volume. Then, you should save the real-time back-ups from the PC on volume 1. Now, use this device and the versioned back-up solution of the NAS device to regularly create sn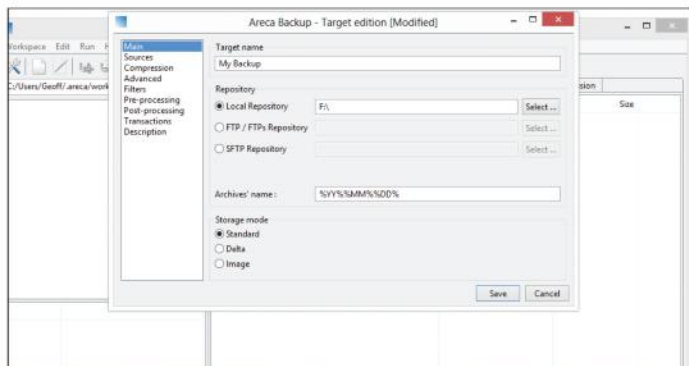apshots on the second volume, with each snapshot containing the exact condition of the back-up folder at the time of the snapshot in question. For Synology and Qnap, such solutions are called 'Hyper Backup' and 'Hybrid Backup', respectively; instructions for either solutions can be found on the manufacturers' websites. If you set the access rights for the snapshot destination folder such that the PCs do not have writing access to it, it would essentially amount to an effective malware protection facility.

Once this system has been set up, a NAS device can comfortably cover the first two back-up steps, even for multiple computers in the home network. However, those who also want to protect their data from plundering intruders or house fires will have to store additional copies outside the home. This can be done using either a cloud service, an external hard drive or optical discs.

Real-time synchronisation on an HDD

The easiest way to handle back-up stage 1 of our plan (real-time protection) involves using the synchronisation tool of a NAS system or cloud service. After the installation procedure has been completed, all you have to do is set up the folders that are to be monitored. Once you've done this, everything else is done automatically. However, the task of creating the same functionality with the help of local hard drives and freeware is more cumbersome. This task can be carried out with the help of the open-source FreeFileSync software. After launching the tool, use the "Select" button under the "Compare" knob to select the source folder in the file system which is to be monitored (caution: this doesn't work with Windows libraries like "Pictures"). Now, use the right-side "Select" button under "Synchronise" to select the destination folder on the second drive. Click the arrow between the green gear wheel and "Synchronise" and select the "Update" option. The "Compare" button displays the differences, with all the files and folders in the source directory displayed for the first pass. And the first synchronisation operation (in which all the files are copied) can also be started immediately. Now, select the "File | Save as batch job" option, activate the "Execute while minimised" option in the subsequent dialogue, select the "At the end: Finish" option and assign a unique name.

Now, enter the following into the address bar of a Windows Explorer window: "shell:startup", [Enter]. Right-click within the empty window and select "New | Linkage". Go to the "Enter the memory location of the element" section, and paste (all in quotation marks) the complete path leading to "RealTimeSync.exe", a space and the path leading to the previously-saved batch file (refer to the screenshot on the left). From that point onwards, RealTimeSync will monitor the source folders that were selected previously during the above steps and copy all new and modified files into the destination folders.

Software alternatives for sync and back-up

A very effective - but somewhat complicated to set up – alternative to back-up stage 1 (real-time protection) is the rSnapshot script. Originally made by and for the world of Linux, we introduced it in a feature article

last year in our June 2017 issue. It creates complete snapshots of the source directories in a quick and space-saving manner, so that even older file versions are retained.

The only other way to do this is to use classical back-up software like Areca Backup, which is well-suited for back-up stage 2 of our plan. Make sure you select the right version (since the 32-bit version is not compatible with a 64-bit version of Windows) during the installation process. If necessary, you should also update your Java installation. After the application has been launched, click the "Edit | New destination …" option. Go to the "General" section, choose a name for the back-up job and set a "Local folder" as the destination folder (e.g. on the external back-up hard drive). Now, go to the "Sources" section, select the source folders containing the data that is to be backed up and use the "Compression | Compression: None" setting, because it doesn't help with involving files that occupy a lot of storage, such as photos and videos.

Use the "Execute | Simulate back-up" option to find out which files are going to be copied, then you can start the back-up operation. This method is best-suited for stage-2 back-ups. Regardless, you will have to start this kind of back-up operations manually after connecting an external drive.

Cloud: 'Eerily' Convenient

Many users understandably have reservations about uploading their files to third-party servers, especially if the servers are in the USA or somewhere else in the world; it's not clear who has or could gain access to them. Furthermore, you can only do cloud-related work in a reasonable manner if you have a fast internet connection that offers an upload speed of at least five Mb/s and there are many locations or countries that don't have this luxury. On the other hand, it can be quite tempting to be able to place responsibilities regarding the continued existence of the files on the shoulders of professional computing centres. Furthermore, cloud storage also has the alluring prospect of being providing access to the files from anywhere and share them with others easily. There are two ways out of this particular dilemma. You could either find (and pay) a service provider who promises to offer a level of data protection that is as wide-ranging as possible, or you could encrypt the files yourself before you upload them to the cloud service. If you choose the latter, you would

Pros & Cons: Cloud storage as an immediate back-up

Although cloud storages are very convenient, they usually leave many questions unanswered when it comes to data protection, so selecting the provider and the data to be uploaded is critical

+ Professional infrastructure offers the best possible protection against loss of data

+ Can be expanded almost at will in case of increasing amounts of data

+ Device-spanning and location-spanning: Security even in case of device losses or house fires

− Faith in the provider is required. But scepticism is sometimes advisable, especially when it comes to American providers

− Speed & usability depend very strongly upon the available internet speed

− Monthly costs and if the price increases in the future, switching providers can often be complicated
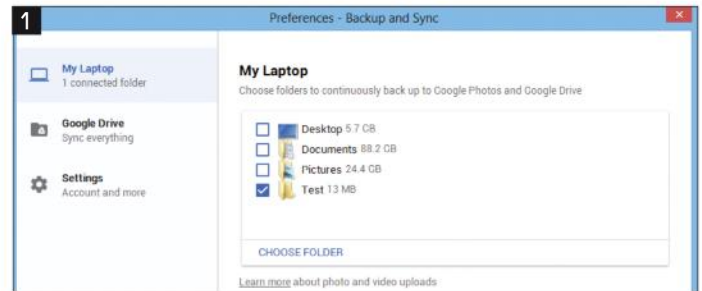
Cloud-backup of mobile phone & PC

1 Google Backup & Sync is the PC client software that synchronises any folders and external drives with the Google cloud

2 Just like the other cloud services, Google Drive also offers a smartphone app, so that you will also be able to access the files when you're on the move
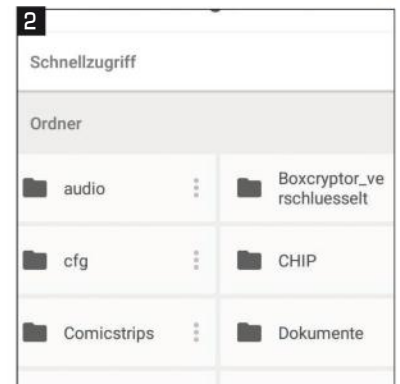
An overview of cloud memories	Backblaze	Dropbox	Google Drive	Microsoft OneDrive	Strato HiDrive	Tresorit
Website	backblaze.com	dropbox.com	drive.google.com	onedrive.live.com	free-hidrive.com	tresorit.com
Server location	USA	USA	USA	USA 2	Germany	Ireland, Netherlands
Capacities (monthly price)	Unlimited (5 USD per PC)	2 GB (free) 1 TB (9.99 USD) 2 TB (19.99 USD)	15 GB (free) 100 GB (RM8.49) 1 TB (RM42.99) 10 TB (RM429.99)	5 GB (free) 50 GB (RM9.49) 1 TB (RM280)⁴ 5x1 TB (RM380)⁴	100 GB (2.99 USD) 250 GB (5.90 USD) 1 TB (9.90 USD) 5 TB (39.90 USD)	200 GB (12.50 USD) 2 TB (30 USD)
Sync clients – Win/Android/iOS/Web access	o/•/•/o	o/o/o/o	o/o/o/o	o/o/o/o	o/o/o/o ³	o/o/o/o
2-factor login/End-to-end-encrypted	o/o¹	o/•	o/•	o/•	•/•	o/o

¹A passphrase must be uploaded in order to decrypt/download.   ²For an additional charge for business customers: Office 365.
³Back-up for an additional charge   ⁴In case of annual billing.

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Google's terms of use grant the company terrifyingly wide-ranging rights of use for uploaded data
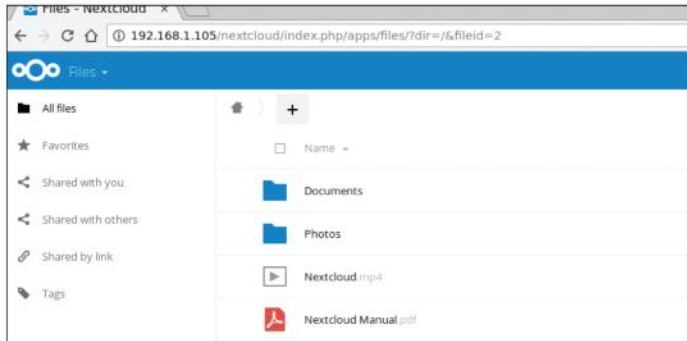
If you have a large webspace or your own server, you can use Nextcloud to set up your own cloud solution

Encrypted in the cloud

Boxcryptor can upload files to the cloud in a manner that ensures that the provider, intelligence agencies and hackers cannot access them. It does so by encrypting each file before it uploads it.
> How it works: The cloud service provider's synchronisation software should already be set up. You must create a user account, during installation, and install a virtual drive (in our case, "X:\"). This virtual drive contains sub-folders for the cloud services that have been found (the free version of Boxcryptor only supports a single service). When you use the virtual drive to switch over to the folder in question, Boxcryptor asks whether the element in question should be encrypted. This question applies to all the files/folders that have been copied here or newly created. If you answer in the affirmative, the tool encodes the file and copies it to the cloud folder with the extension ".bc". These files will then no longer be readable in the web interface of the cloud service.
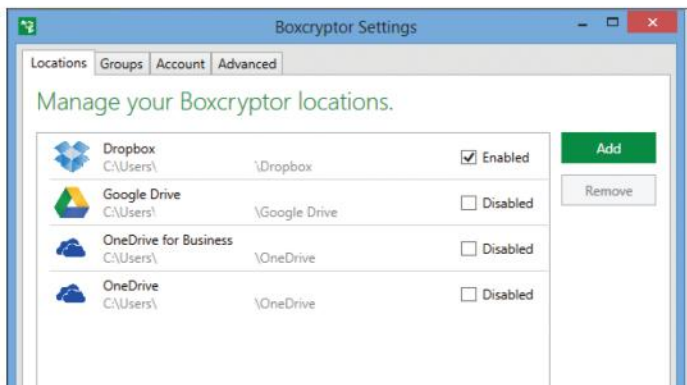
Files that are pushed into the cloud via the virtual Boxcryptor drive are automatically encrypted at the local level beforehand, and they are decrypted when they travel in the other direction

be encrypting the files with the help of a locally-retained key (see 'Encrypted in the cloud').

Choosing the right provider

Dropbox invented cloud storage for private users, while Google spread the concept of an online storage far and wide by offering it as a free Gmail bonus, and especially by linking it to its online office feature. Just like their competitors, these two players also offer a few Gigabytes' worth of memory for free. However, that's not enough for heavy-duty back-ups. Furthermore, American providers seem to think poorly of the idea of data protection. This is what Google's terms of use have to say: 'When you upload, submit, store, send or receive [...], you give Google a worldwide license to [...] reproduce, [...] modify, [...] publish [...] and distribute such content.' This doesn't just apply to the free entry-level package, but also to paid options that provide more capacity.

In essence, you should only use cloud service providers whose servers lie in the US to store uncritical files (e.g. downloaded software and media or landscape and architecture photos) in an unencrypted manner. When it comes to images containing people and private documents, you should only upload such items to these services within an encrypted Boxcryptor folder (see bottom left). However, the Backblaze back-up service is somewhat exceptional in this regard, because it does at least offers a type of end-to-end encryption. In this case, you would have no choice but to believe the provider's claim that the encryption and decryption passwords that are to be entered into the web interface for recovery are not stored.

While some providers are quite clean from a legal point of view, there are some like Tresorit that sets itself apart from the rest through its technical security features. This applies in particular to the service's full-fledged end-to-end encryption that is based on the zero-knowledge principle, which states that the password only remains with the user to ensure that the provider cannot access the data in any way.

Storage capacities and handy sync software

From our experience, most cloud storages services offer synchronisation software for Windows (some even for Android and iOS). All you have to do is set the folders to be synchronised once. After that, new or modified files will immediately be uploaded to the cloud storage. This setup is great for back-up stage 1 (real-time protection) and complements back-up stage 3 (catastrophe hazard insurance), so that you won't have to put aside full back-ups elsewhere too frequently. However, since even cloud services themselves can break down or become unreachable (e.g. in situations involving long-term internet disruptions), you should never forego a regular stage-2 back-up. The cloud clients also provide synchronisation operations across multiple devices. For example, a folder can be kept synced across two or more computers, as well as the cloud. Depending on the size of the online storage, it can be somewhat tight on the wallet for some. An offer of one to two terabytes for about RM50 to 80 per month is quite reasonable in terms of price, as long as you don't project the costs over a period of several years. No capacity limits whatsoever are imposed by Backblaze, which uploads all the contents of all internal and external drives of the computer by default (however, you can only back up individual directories).

Optical Discs: Can't Be Erased & Long-Lasting

DVDs and Blu-rays are cumbersome in comparison with hard drives, especially when compared with cloud storage. This is due to their limited capacities, as well as the fact that you have to construct each disk individually and burn it in a time-consuming manner. However, they also have advantages. Case in point, data that is stored on the write-once mediums – that we're recommending for back-up stage 3 – can no longer be modified or deleted. They are also small and inexpensive, which in turn makes it easy for you to store them away from your home. Since such back-ups are only made a few times a year, the complicated procedure doesn't really look like that big a deal, and it also provides a good opportunity to sort unimportant things out of the pile of data. The issue of whether you'll need additional hardware depends upon the amount of data that is to be archived. If it's for office documents, thousands of them can fit onto a DVD-5 (capacity of 4,480 MB), which can be burned by any computer that has an optical drive. But before you go ahead and burn more than two or three DVDs, it would be better if you do yourself a favour by obtaining a Blu-ray burner, which can write mediums with capacities lying in the range of 25 to 50 GB. Internal models for desktop computers are available at prices ranging from around RM300 onwards, while external Blu-ray burners can be obtained at prices ranging from RM450 onwards.

Service life not unlimited

When data is written onto an optical medium, a laser literally burns the bits into a layer. By doing so, the bits are supposed to last forever. However, with conventional DVDs and Blu-rays, the aforementioned layer is made up of organic material, which degenerates after a few years if the device is stored under excessively damp and warm conditions. It would therefore make sense to burn all the data onto new blank disks every year, retain two to three generations and dispose of the older pieces. Another option is to go for M-Disc-DVDs or Blu-rays, which have significantly longer service life, though both require a compatible disc burner. The advantage of the two types of disc is that its writeable layer is made up of inorganic material, which is supposed to be able to survive for a thousand years (according to the inventors). However, what's less clear is whether the polycarbonate medium material remains optically neutral and doesn't get distorted for such a long time. Regardless, since the actual service life only becomes apparent when the medium begins to lose its readability, you shouldn't let things reach such a level even if you're using them. In other words, always try to keep multiple copies if you plan to use these kinds of discs.

Organising and burning data

When it comes to burning, it is difficult to accommodate everything without giving away a whole lot of capacity. If you don't want to stress over what's going to fit onto which DVD, you could use the 7-Zip compression programme to put all the folders to be burned into a ZIP archive. To do so, simply enable the "Compression strength: Save" setting and use the "Split into part files:" option to select the desired media size. Once this has been done, each part file will fit onto a single medium. If you're storing the mediums with relatives, you could also go ahead and enable an encryption system that requires a password. As is always the case with encrypted data, you will have to make sure you don't forget this password under any circumstances, or you might end up securing the data from yourself!

Pro & Cons: DVD/Blu-ray as a permanent archive

The intricateness of optical data media is both an advantage and a disadvantage, mainly because data can no longer be deleted or manipulated once it has been burned onto a DVD or Blu-ray

- **+** Back-ups normally cannot be deleted or manipulated
- **+** Relatively long service life if stored properly
- **+** Relatively low costs per medium; easy to store, so optimal for back-ups that are to be stored away from home
- **–** Back-ups and recoveries are quite cumbersome and time-consuming
- **–** Inflexible: Relatively small and unchangeable media sizes of 4.4 or 25 GB
- **–** Slow writing and reading speeds
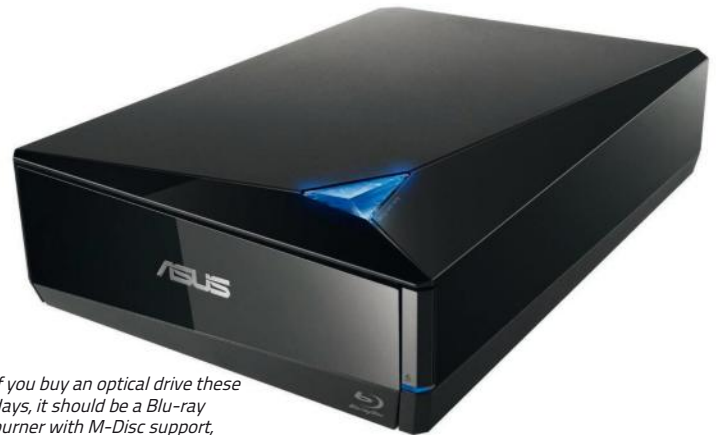
If you buy an optical drive these days, it should be a Blu-ray burner with M-Disc support, which is available as an internal or external USB model

M-Disc: The data should become as old as the hills

Normal mediums store data in an organic layer. When an M-Disc is written, the laser burns holes into an inorganic layer, whose composition is similar to that of stone

Polycarbonate

UV adhesive

Inorganic layer

Laser-burned pits
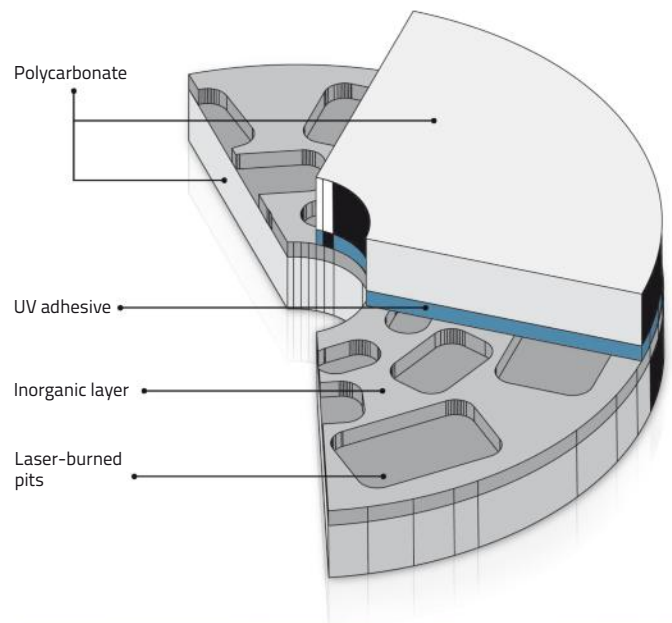
Consumer Electronics Show 2018

BY CHIP Team

In a blink of an eye, 2017 passed us and the Consumer Electronics Show was back again, as it was held within the second week of 2018. It felt like a quiet affair for some, with some major brands not really turning up this year or didn't showcase anything of interest. Of course, that's not to say that there wasn't anything interesting at all.

Besides the usual brands we're familiar with, we also have some outliers this year with unique projects, while there are also some brands that seem to be branching out into areas unfamiliar to them. In the following pages, we've made a roundup of what we felt were some of the highlights at Las Vegas this year.

A&S

▪Hurricane-S

The Hurricane-S is a mini-sized speaker that is designed to be the life of the party. It is small enough to be placed in any room, ranging from your living room to your balcony. It comes built with a CD Player slot for your CDs, and if you wish, you can connect it to Spotify via Spotify Connect for all your playlists. You can also control the device anywhere in your house using Wi-Fi.

▪Cinematic Bar With Dolby Atmos 800

Home Theatre went through a long and arduous journey to where it is now. With this Cinematic Bar that is equipped with Dolby Atmos 5.1.2, you can experience the movie as if you are in it. The package comes with a soundbar that is placed under or above your TV, and a massive 200W subwoofer placed near your couch for optimal surround sound. You can connect the device via Optical, Coaxial or HDMI cable, or stream music from your other devices via Bluetooth.

▪Mini Studio Bar 110

For some people, their space at home is minimal and their budget limited as well, this is the perfect sound bar for them. It is built with a metal grill speaker and matte black housing for optimal durability in a small body, outputs power of 15W x 2, and can be controlled via remote control. You can connect it to your TV with a few ways, including HDMI and AUX. But with Bluetooth, you can connect it to a myriad of devices, saving you the hassle of finding wires. Good things do come in small sizes.

ACER

▪ Predator Orion 9000

The Predator Orion 9000 is a prebuilt desktop built that comes with some monstrous specs. It is packed with an 18-core Intel Core i9 Extreme Edition processor, up to 128GB of DDR4 RAM, up to four graphics card, and can be fitted with up to 44 TB of storage. If you are talking about massive, look no further than this beast. Imagine fitting four NVIDIA GeForce GTX 1080ti in one singular desktop! The whole desktop is also designed with IceTunnel 2.0, which will keep your device cool while gaming. With this you can tackle every game without issues, provided that they're built well and optimised for PC that is.

▪ 65-inch Predator Big Format Gaming Display

Aside from being a mouthful, one of Acer's latest monitor is a 65-inch display that comes fit with NVIDIA G-SYNC and NVIDIA SHIELD streaming capabilities. As mentioned, it is a large display that can easily be placed in your living room and still look great. This 4K display is equipped with 120Hz and with NVIDIA G-SYNC, you can experience buttery-smooth gaming. If you pair the display with a NVIDIA SHIELD, you can even use it for gaming, as well as other forms of entertainment such as watching TV shows or movies. You can also control the display with your voice, as Google Assistant is enabled on it. Now, you can game on a high resolution and high refresh rate while sitting on your couch.
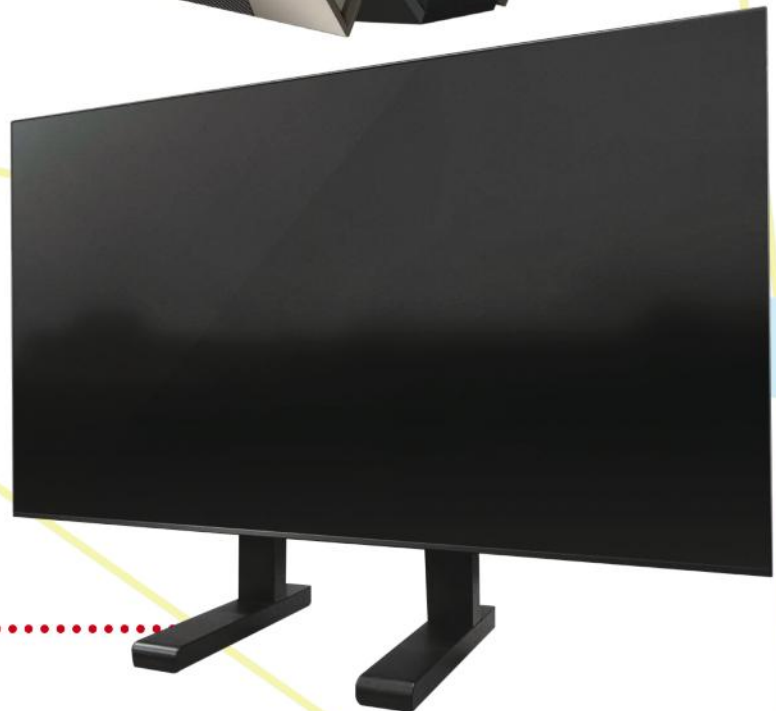
▪ Switch 7 Black Edition

The Acer Switch 7 Black Edition is a 2-in-1 laptop that is equipped with a removable keyboard and can be used as a tablet. It comes pre-installed with Windows 10 Home, and sports an Intel Core i7-8550U processor, 16GB of DDR3 RAM, and 512GB of storage. You can also fit a microSD card in the device. As for the screen, it is topped with a 13.5-inch QHD IPS display. For the graphics card, it comes with a NVIDIA GeForce MX150, which should be able to handle some games that you throw at it. Of course, it is a productivity machine which can be used to tackle different daily tasks. You can also control the device with a stylus.

ASUS

▪ROG Strix SKT T1 Hero Edition

If you are a League of Legends fan, then this is a laptop that will definitely catch your eye. As the name suggests, it is a laptop that heavily features SK telecom T1, a South Korean professional team that has won numerous LoL competitions, and this laptop is the fruition of the collaboration between ROG and SK telecom T1. At the bottom right of the keyboard, you can spot Faker's signature – one of the most influential player in LoL from SK telecom T1. The laptop also features a 120Hz IPS display, and in the packaging, it is bundled with limited ROG SK telecom T1 goodies as well. As for the GPU, it sports a NVIDIA GeForce GTX 1060 card for all your gaming needs.

▪ZenBook 13

The ZenBook was also reintroduced with some new specs and improved design. This time, it is the slimmest laptop in their repertoire, coming at only 13.9mm thick, and weighing 1.12kg only. It also sports a slim-bezel Nanoedge display that allows a larger display compared to a typical 13-inch laptop and comes with two different colour variations of Royal Blue and Slate Grey. We do suggest you go for the Royal Blue, as the colour is exquisite and pretty unique. Besides that, the laptop is equipped with 4K Ultra HD resolution capabilities. According to ASUS, it can last up to 14 hours on a full battery.

▪Lyra Trio

Not to be confused with tents that you sleep in and camp out in, the ASUS Lyra Trio is a Dual Bend Mesh WiFi system, and it is capable of covering up to a massive 5,400 square feet with WiFi. It is also equipped with AiProtection network security, which is powered by Trend Micro, and has Parental Controls capabilities that works alongside Amazon Alexa. With this dual band, tri-hub mesh WiFi system, you can now deliver WiFi to every corner of your home.

DELL

▪ Latitude 7390 2-in-1

The new Latitude 7390 announced at CES 2018 is a convertible notebook that features a 13.3-inch Full HD display, which sits on a 360-degree hinge allowing for a full 360-degree rotation of the display for different modes. It also comes with slim bezels around the screen to make the notebook much more compact, as well as posessing of superior security, versatility and accessories to empower the way you work wherever your job takes you. Outstanding flexibility with the 360-degree hinge lets you view your work from nearly any angle without having to slow down.

▪ S2719DM

Say hello to Dell's new Ultrathin monitor the S2719DM, which is the bigger brother of the smaller 2419HM. The S2719DM is 27-inches and features a sleek design that's thin from every angle. Using an IPS panel, the 2719DM has great colour coverage and viewing angle, combining with Dell's Infinity Edge design for excellent looks plus a nearly borderless design. Dell also used its Comfortview technology for a flicker-free screen optimised for eye comfort.

▪ XPS 13 9370

The Dell XPS 13 just got a lot slimmer this time around with the 9370 model. With its slimmer chassis and lighter weight, it's hard to ignore. Dell has always been a large supporter of borderless designs so it's a huge treat to also see this on the XPS 13 9370. The narrow screen bezel combined with an optional 4K display just provides an experience that's hard to forget. There's also support for eGPUs and a new cooling system that promises stable performance.

GAMDIAS

▪CYCLOPS X1-1200P

An integral part of any computer the power supply isn't something one should skimp on, and GAMDIAS shares the sentiment. Which is why they released the Cyclops X1 that sports an 80PLUS Platinum certification. Built from Japanese capacitors and other high-end components, the Cyclops X1 is here to provide great durability and stability together with a fully modular flat cable system, which not only makes cable management easier but allows additional airflow.

▪CHIONE M1-240C

The new liquid cooler from GAMDIAS is the CHIONE M1-240C, designed to keep your computer cool while giving you a splash of visual excitement. The CHIONE is comprised of twin AEOLUS P1 fans that are designed for customised lighting.

Additionally, it uses Teflon tubes, a copper base plate, and aerospace-grade lubricant, giving it great durability, thermal conductivity, and silence all-in-one. The CHIONE also has a smart PWM temperature control for superior thermal and noise management.

▪AEOLUS P1 Case Fan

The P1 is a customisable case fan that has 16.8 million colors to play with, as well as 18 LEDs that can be adjusted separately for its colour and brightness. Its speed and lighting effects direction can be changed according to your creativity and imagination. Using aerospace-grade lubricant for better protections against friction and wear, the fans generate less noise even after long time usage. These fans are best paired together with the AEOLUS Box, which allows users to achieve eight lighting effects simultaneously.

HP

▪ Spectre x360 15

A new year means new upgrades for some and that's the case for HP this year. The brand's Spectre series now has a new model – the Spectre x360 15 – that features Intel's latest mobile processor. Better yet, this new processor is one that features AMD's Radeon RX Vega M graphics. AMD's mobile processors have always performed well, so we are definitely interested to see how this new collaborated effort pans out for mobile PC gaming.

▪ Envy x2

The 2-in-1 form factor is now entrenched, becoming the reason of many to return to mobile PCs for communications and light productivity. HP's Envy x2 might not be special or fancy, but it provides the mobility and battery life that mobile workers require. Thanks to 4G LTE SIM card support, you'll always be connected too. Qualcomm makes it first Windows PC appearance here, by equipping this device with the company's latest Snapdragon 835 chipset.

▪ Pavilion Wave

HP also has something a bit different from what we usually see from the brand – the Pavilion Wave desktop. This desktop PC looks stylish and compact, but HP promises that it packs some decent specs within. It's unique integrated speakers provide simulated surround sound, while Intel's 8th Gen Core processors and an optional AMD Radeon R9 470M GPU helps you do some light productivity work, as well as enjoy some multimedia content.

LENOVO

▪ThinkPad X380 Yoga

Lenovo is no stranger to laptops, and the ThinkPad X380 Yoga is no different. It is equipped with a 360-degree hinge that allows you to lay the device flat out, or turn it around into Tent mode for media consumption. Additionally, it sports an 8th Gen Intel Core processor, up to 16GB of DDR4 2,400 MHz RAM, and up to 1TB of internal storage. A 13.3-inch Full HD IPS touch display can be found on the device, along with a 51 Whr battery that can last up to 13.6 hours and can be charged to 80% in an hour. You can also unlock the laptop through facial recognition or the fingerprint reader.

▪ThinkPad T580

Another ThinkPad up Lenovo's sleeve, the ThinkPad T580 is made for the busy businessman, with plenty of features to make it one of the best contenders that vie for a spot in their bag. There are a few configurable parts for it, consisting mostly of an 8th Gen Intel Core i7 processor, Windows 10 Pro OS, 32GB of DDR4 RAM, 2TB of HDD, 1TB of PCIe SSD, and a choice of Intel UHD 620 or NVIDIA GeForce MX150 GPU. As for the 15-inch display, you can either equip it with a Full HD IPS touch display, non-touchscreen Ultra HD IPS or Full HD IPS display. The device's battery can also be swapped, allowing you more time working instead of charging.

▪Tablet 10

The Lenovo Tablet 10 is a 10-inch tablet, but unlike most tablets, it will be running on an Intel Celeron N Series CPU. It will also be available with Windows OS installed on the board, and from the look of things, will be packed with a detachable keyboard, along with an Integrated Pen. It was also alluded to be made for the retail market.

MSI

▪ GeForce GTX 1080 TI LIGHTNING Z

MSI's top of the line graphics card is ready to take the gaming world on, engineered to perfection. The MSI LIGHTNING Z are at the top of the overclocking scene with advanced cooling and cutting edge features that are needed for top level performance, which it delivers. Sporting the TRI-FROZR design, it uses triple TORX 2.0 fans for maximum air flow and heat dispersion, while keeping quiet with heatsinks that even covers the MOSFETs and memory entirely for complete cooling of the graphics card. It's able to hit a core speed of 1,721MHz but it's up to you to fully pull out its potential. Moreover, its massive 11GB of GDDR5X memory means that there will be no game that is a match for it.

▪ GT75VR TITAN PRO

The gaming machine that will succeed the GT83VR, the GT75VR introduces a new design aimed towards better ergonomics and comfort for long hours of gaming. For example, its Rapid Mechanical RGB Keyboard gives the GT75VR incredible feel and speed that's suitable for even the most hardcore of gamers. In addition, with the most powerful hardware like an Intel seventh generation i7 processor, GeForce GTX 1080, NVMe SSD, and a 120Hz Full HD display, the GT75VR TITAN PRO doesn't mess around.

▪ Infinite X

The MSI Infinite X is for those with the desire to game and houses some of the world's best gaming hardware. This desktop features a special cooling system called Silent Storm Cooling 3 Pro, which separates components into different chambers for better cooling performance. It is also supported by MSI's custom Dragon Liquid Cooling to pull out every drop of performance from the Infinite. Regardless of what configuration you choose for the Infinite X, you'll have powerful components like the GTX 1070 or GTX 1080Ti powering this beast, so you're in for a heck of a ride.

SAMSUNG

▪CJ791 QLED Monitor

Unveiled at CES, the CJ791 is the first curved monitor to come with Intel's Thunderbolt 3 connectivity. It is a 34-inch monitor with 3440 x 1440 ultra-wide QHD resolution and 21:9 aspect ratio. With Thunderbolt 3 capabilities, the monitor can be docked with a laptop for larger viewing. At the same time, it can be used to transfer files and even be used to charge the laptop. The monitor also sports a 4ms response time for smooth transitions between visual frames, ideal for gaming.

▪NW700 Soundbar Sound+

The NW700 is one of Samsung's latest soundbar. It is wall mountable and incorporates the latest technologies and advancements in sound bar, with features such as sound-enhancement, distortion cancelling, wide-range tweeters and multi-speaker control. It is slim and measures at only 535 mm in width, 41% narrower than their previous soundbar. This soundbar has been touted to be able to achieve powerful bass with cohesive soundstage and impressive clarity.
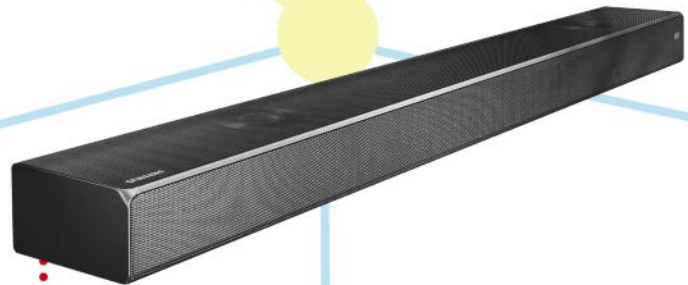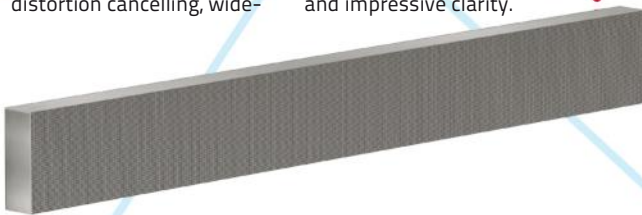
▪HW-MS750 Sound+ Premium Soundbar

Another featured soundbar, the HW-MS750 is equipped with 11 speakers with two upward firing drivers to wrap your living room with rich, full and realistic sound. Along with Distortion Cancelling technology, it can predict and cancel out distortion before it happens, and multi-speaker control increases the power and depth of the bass for a rich bass. Do away with issues of sound not filling your room with this device. You can also control the soundbar with just your voice and control your TV with Bluetooth or Wi-Fi.
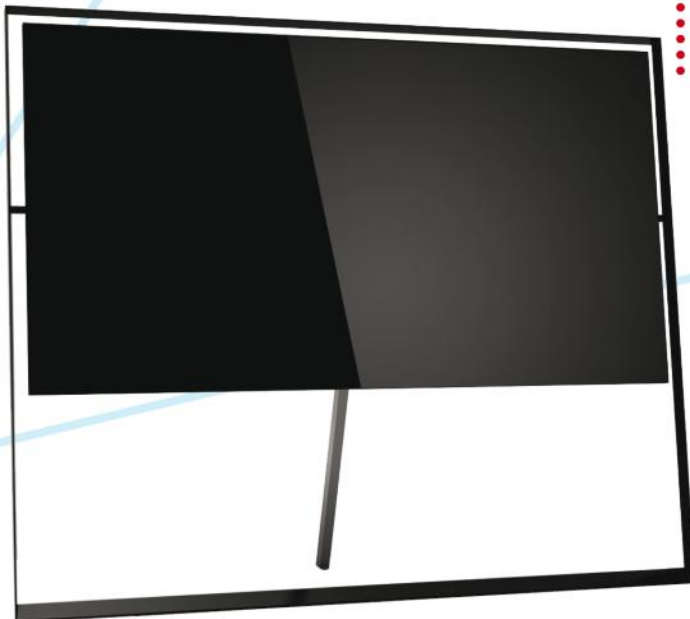
▪Q9S 8K TV

Remember when 4K is the thing to strive for? Samsung doesn't. They've gone and done it and came out with an 85-inch 8K TV. But that's not all. It is also equipped with Artificial Intelligence, to help deliver all content in 8K. You heard that right. The TV, with its AI capabilities, can upscale content to gorgeous 8K. It is also designed with a stand similar to painting easels, making it stand out in your living room. So now, no matter what content you throw at it, you can bask in the glory and clarity of 8K.

SONY
▪Bravia A8F

Sony returns to CES 2018 with a brand new OLED TV, which has impressed with its slim and bezel-less design. Don't be fooled at first glance when you find that there are no speakers visible, because Sony uses an Acoustic Surface Technology that turns the entire screen into one big speaker. Not to mention, the subwoofer at the back for lower frequencies. Sporting an X1 Extreme processor, the Bravia is capable of noise reduction, motion handling, upconversion and object-based HDR. Additionally, the A8F supports three HDR formats: HDR10, HLG and Dolby Vision.

▪MDR-1AM2

Updating their MDR-1A with some new stuff, Sony reveals the MDR-1AM2, now with a brand new 40mm audio driver that contains an aluminium-coated liquid crystal polymer diaphragm. It claims to have a frequency response that tops out at 100kHz. In addition, it uses synthetic leather ear pads and comes with two cables, with the first being a regular 3.5mm cable and another a special 4.4mm Pentaconn balanced audio cable that is used with certain amplifiers and media players capable of supporting balance outputs. This model is also lighter and more comfortable for long hours of listening to your favourite tracks and tunes.

▪HT-Z9F

Feel the thrill of movie audio with the HT-Z9F a 3.1ch Dolby Atmos / DTS:X sound bar that fits perfectly in every home. It features a Vertical Surround Engine that lets users enjoy 7.1.2ch sound using advanced digital signal processing. No matter what room you're in, its three front speakers reproduce "vertical" sounds to create that surround sound feel. Furthermore, movies aren't the only thing you can enjoy with the HT-Z9F, as you can connect multiples sources using HDMI, Wi-Fi and USB to enjoy music as well.

RAZER

▪Project Linda

Always ready to show us surprising and interesting new products every CES, Razer's Project Linda is definitely one that caught the eyes of many this year. Seemingly a laptop at first glance, Project Linda is an elaborate dock built just for the Razer Phone. Once docked, the phone can be charged while you enjoy your apps or videos on the larger display, as well be operated by using a keyboard and a wired or wireless mouse. Essentially, docking a Razer Phone to it turns it into an Android PC.

▪Project Nommo Pro

Headsets might be the preferred choice for online gaming due to the isolation of output and mic input, but single-player RPG or adventure games always feel best with a good set of speakers. Razer's new Project Nommo Pro is a 2.1-channel speaker that is meant to look good and sound better. Tuned to provide virtual surround sound and powerful bass, this speaker would be excellent not only for gaming, but also movies and music.

▪Mamba Firefly Hyperflux

Another innovative Razer show piece was the Mamba Firefly Hyperflux. The Firefly Hyperflux mouse mat doubles as a wireless charging pad for the wireless Razer Mamba, so that users can enjoy true wireless freedom. As long as the Mamba is connected to and placed on top of the mat, you'll never have to worry about the battery running out while you're gaming. Not having a built-in battery also means it's lighter than other wireless mice, so it's less tiring on longer gaming sessions.

ETC

▪ Arcimoto FUV

An electric-powered car sounds more economical but unfortunately, they tend to be expensive. Arcimoto intends to change that with its Fun Utility Vehicle, at least for the USA. This three-wheeled vehicle runs using two front motors and is priced at about USD 11,900, which will cost about RM46,730 in Malaysia if you don't factor in local taxes. The base model can travel around 110KM on a single charge and goes up to around 128 kilometres per hour.

▪ Nintendo Labo

After Nintendo's incredible success with its Switch portable console last year, the company has gone on to add to the fun image it always preferred with the Nintendo Labo. It's basically a concept of using pre-made cardboard creations that 'combine' with the Nintendo Switch to enable new ways to enjoy different games. The pieces revealed so far include a variety kit that provides a 'fishing rod' for a fishing game and 'handlebars' for a motorcycle game, as well as a robot kit.

▪ Casio G'Z Eye

Casio was also there at CES 2018 and a product from them that caught our eye was the G'Z Eye. This action camera has a unique design as it looks like a typical Casio wrist watch. Built tough, it can withstand drops from a 4-metre height, go 50-metres underwater, and shrugs off dust like it doesn't matter. In addition, it can cover an ultra-wide 170° when capturing Full HD videos, create slow-motion videos, and its button layout makes it easy to use. Of course, it also has mobile app support for those who want to quickly upload their shots and videos to social media.

▪vivo In-Display Fingerprint Scanning

While not exactly a new product, the fact that vivo is innovating the fingerprint technology – that's become so standard these days – is an interesting piece of news. vivo's new fingerprint tech is called the in-display fingerprint scanning technology. As the name implies, the scanner is on the device's display itself, which removes the need of a button on the bezel or back. According to vivo, the technology is ready to go into mass production, so we should be able to see it within 2018.

▪Vuzix Blade

For something along the lines but slightly different, there's the Vuzix Blade augmented reality smart glasses. Google Glass might have been scrapped, but this one seems more advanced. It has its own touchpad, internal batteries, and a built-in mic for use with a voice assistant that's confirmed to be Amazon's Alexa. Since it's designed for the Android OS, it's got a higher chance of mass adoption, assuming it even becomes a hit.

▪HTC Vive Pro

Experts reckon that it'll take a few more years before virtual reality technology matures and sees widespread adoption. But that's not stopping HTC from making a new virtual reality headset – the Vive Pro. Much fancier and now with built-on headphones, the Vive Pro is superior to the Vive in resolution output and tracking accuracy – according to HTC. It'll also be fully wireless now, thanks to Intel's WiGig technology.

TEST LAB: The Tools

Here at the CHIP Test Labs, we adhere to the high requirements set by the CHIP International Testcenter standards. This means that everything here -- from our own personal knowledge and to our trusted tools of the trade -- are meant to provide the most optimised, unbiased and comprehensive review to every product that comes through our doors. As thus, our test bed tools are specifically picked to get the most out of every test we perform

Intel Platform

Motherboards
Intel DZ77GA-70K
MSI Z87 MPower

Processors
Intel Core i7-3770K
Intel Core i7-4770K

Graphics Processing Unit
MSI GeForce GTX 980
GAMING 4G

CPU Cooler
Cooler Master Hyper
212 Turbo

AMD Platform

Motherboards
ASUS Crosshair V
ASUS A88X-Pro

Processors
AMD Ryzen 7 1700

Graphics Processing Unit
ASUS Radeon R9 290X

CPU Cooler
Cooler Master Hyper 212
Turbo

PSU, Storage & RAM

Power Supply
Cooler Master Silent Pro
Hybrid (1300W)

Storage
Western Digital Black² Dual
Drive
Western Digital My Book
Live Duo

Memory
Kingston HyperX
HX424C15FBK4/16

Benchmark Software

Operating System
Windows 10 Pro
(64-bit)

Futuremark
PCMark 10
3DMark

Industry Standard Benchmark Tools
AIDA64
SiSoftware SANDRA
Speccy
Unigine Heaven

TEST LAB

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CHIP Awards

CHIP Editors' Choice Award
Awarded to products that receive unanimous endorsement from all CHIP editors for its overall brilliance

CHIP Outstanding Award
Reserved for products that combine astute technical performance with good quality and design

CHIP Recommended Award
Given to products that possess singular quality worthy of a recommendation

Ratings

Each product review is rated on a scale of 1 to 5 for different key parameters:

PERFORMANCE : Refers to the efficiency of execution
FEATURES : Rates the abilities and unique characteristics available
DESIGN : Varies according to product. Finished products - form factor and build quality. Hardware components - layout, size and cooling solution. Software - user interface
VALUE : Calculated from the performance and features of the product in relation to the price

first looks

All EYEs On You

HTC U11 reignited the market's interest with HTC once again, and they are not looking to stop anytime soon. The HTC U11 EYEs is a new variant to the U11 and, as noted with the name, it focuses and improves on the camera aspect of the already great camera on the U11. You can unlock the device with just your beautiful looks thanks to Face Unlock and it sports a Snapdragon 652 processor, along with 6GB of RAM and 64GB of internal storage, which can be upgraded with a microSD card. Camera wise, it has a 12-megapixel HTC UltraPixel 3 rear camera, along with a dual 5-megapixel front camera for all your selfie desires.

HTC U11 EYEs
Contact: Dynamics Distribution Sdn Bhd
Phone: (03) 8024 2100
Info: http://www.htc.com/my-en/

Rainbow-coloured Liquid

The Cooler Master MasterLiquid ML240L RGB is Cooler Master's latest RGB addition to their AIO cooling solution. For RGB enthusiasts, your dreams have come true, as Cooler Master answers your call. This device is an AIO Cooler that brings liquid cooling to your processor unit. The Cooler Master logo located on the pumps is RGB enabled, and the whole package comes with two MasterFan RGB fans that are screwed onto the radiator, giving you more colour to your build. It also comes with a controller that allows you to change the mode, colour and brightness based on your liking.

Cooler Master MasterLiquid ML240L RGB
Contact: Ban Leong Technologies Sdn Bhd,
Build Technology Supply Sdn Bhd
Phone: (03) 7956 6300, (03) 7955 3699
Info: www.coolermaster.com

As Fast As A Sniper Bullet

If RGB is not your thing and you are more of a camouflage person, then this is the product for you. As you might now by now, G.SKILL is a brand that is heavily touted for their outstanding RAM, and this is no exception, aside from being dressed in camouflage that is; the Sniper X comes in speeds of up to DDR4 – 3,600 MHz. The camouflage design comes in a few patterns – Classic Camo, Urban Camo and Digital Camo. It is also developed to match one of ASUS' latest boards, the ASUS TUF Gaming series motherboard which also feature a camo design.

G.SKILL Sniper X DDR4
Contact: Eternal Asia (M) Sdn Bhd, IDEAL TECH PC Sdn Bhd
Phone: (03) 5613 5600, (03) 9202 3137
Info: https://www.gskill.com/en/

Chomping Down

Thunderobot has recently landed in Malaysia, and we just can't wait to get our hands on this mammoth of a device. The Thunderobot DINO features a futuristic design with its metal chassis. It comes with an Intel Core i7-7700HQ processor, as well as up to a NVIDIA GeForce GTX 1070 GPU and 32GB of DDR4 RAM. To keep things cool during heavy gaming, it is equipped with two fans and a heatsink with four free-conduction copper heatpipes. As for the display, with a 15.6-inch Full HD IPS display to output your favourite games. The keyboard is no slouch as well, as it comes with RGB backlit capablities.

Thunderobot DINO
Contact: ECS Astar Sdn Bhd
Phone: (03) 6286 8222
Info: http://thunderobot.com/

10/10 Viewing

The honor View10 was announced locally when the honor 7x was premiered. It has a few new tricks up its sleeve, being honor's first dive into a AI-driven smartphone. The device comes with a Huawei Kirin 970 processor with a built-in NPU (Neural-network Processing Unit), which slowly learns about your behaviour and habits. It is also equipped with 6GB of RAM, 128GB of internal storage and a 3,750mAh battery that can be charged in just a few minutes, yet will last you hours. As for the camera, it sports a dual camera setup of 20-megapixel (monochrome) + 16-megapixel (RGB) cameras that can take marvellous pictures, along with a 13-megapixel front camera. All these, displayed on a 5.99-inch FullView Display with 18:9 aspect ratio.

honor View10
Contact: Huawei Malaysia Mobile Hotline
Phone: 1 800 22 0086
Info: www.vmall.my

A Chrome-y Looking Book

Usually Chromebooks are pretty much a bargain, even in our local market. Acer has recently announced a new Chromebook – The Acer Chromebook 11 C732. For this version, it comes with either an Intel dual-core Celeron N3350, or a quad-core Celeron N3450 processor. Similar to most Chromebooks, it is built to withstand torture from kids. It comes with an IP41 rating, is compliant with the US MIL-STD 810G standard and adheres to the MIL-STD 810F standard. To give you an example, it can handle drops of up to 122cm and can handle weight of up to 60KG. As for the battery life, it can last up to 12 Hours.

Acer Chromebook 11 C732
Contact: Acer Sales and Services Sdn Bhd
Phone: 1 800 88 1288
Info: www.acer.com.my

Tinker Yourself A Board

Following up with the popularity of their last Tinker Board, ASUS comes out swinging with the Tinker Board S, which is equipped with a quad-core ARM processor, the Rockchip RK3288, 2GB of DDR3 RAM, and 16GB of eMMC storage. Along with SD 3.0 interface, it can read and write faster. As for the GPU, it sports a Mali-T760 MP4 GPU that can be used for a variety of things such as media playback, gaming, and so on. The board also has a full-size HDMI output for your monitoring device, and four USB 2.0 ports for all your extra peripherals.

ASUS Tinker Board S
Contact: ASUSTek Computer Malaysia
Phone: (03) 2131 6650
Info: www.asus.com/my

A Helpful Ronin

DJI's Ronin-S is a stabiliser for your DSLR and mirrorless cameras, allowing you to use your camera and keep your shots stable, all with one device. A stabiliser is indispensable when you wish to film cinematic shots or tracking shots and want to keep a stable footage. With an innovative framework, the camera is seated above the roll axis, freeing any obstructions from blocking your view when you are recording. If you wish, you can even mount the Ronin-S onto an RC buggy or a jeep for other recording or photo needs. With the plethora of accessory mounts available on the Ronin-S, you can couple together a few accessories onto the Ronin-S and still maintain full control.

DJI Ronin-S
Contact: ECS Astar Sdn Bhd
Phone: (03) 6286 8222
Info: https://www.dji.com/

Experience XPS

Dell, a beloved brand when it comes to all things computer, has decided to improve the XPS series for 2018, all in the month of January. Now, the new XPS 13 comes in two colour options – Platinum Silver & Black Carbon or Rose Gold & Alpine White; most people tend to favour the white variant as it oozes a deluxe feel to it. In terms of specs, it sports a 13.3-full HD InfinityEdge display, uses Intel 8th Gen processors, has up to 16GB of DDR3 RAM and 512GB of SSD, all while being jam-packed with other notable specs as well. In addition, you can enjoy movies in high quality, vibrant colours and with clear details using Dell Cinema, all on a laptop.

Dell XPS 13 (2018)
Contact: Dell Asia Pacific Sdn Bhd
Phone: 1 800 88 0301, 1 800 88 2888
Info: www.dell.com.my

Be Active

Jabra's latest earbuds comes in the form of wireless earbuds and it is made for people with an active lifestyle. It fits in your ear snugly and is IP56 rated, protecting the device from rain, sweat, tears and dust, so you can run, hike and jog all in the rain without any issues. According to Jabra, the earbuds can last up to 5 hours per charge and can be charged with the charging case for a total of 10 hours, giving you a full usage of 15 hours. The earbud set also utilises Bluetooth 5.0 to deliver your music to you without the annoyance of wires. If you wish, you can also communicate to your earbuds using Alexa, Siri or Google, allowing you to check your appointments, do some quick Google search and so on.

Jabra Elite Active 65t
Contact: Advance Digital Solutions Sdn Bhd, Ingram Micro Sdn Bhd
Phone: (03) 8076 4833, (03) 7952 8084
Info: www.jabra.com

Better Than A One-Eyed Cyclops

GAMDIAS, a company that focuses heavily on peripherals and components are releasing a new power supply with RGB capabilities. It is 80 PLUS Platinum certified and ensures up to 92% energy efficiency, which will allow your unit to not waste power and build up excess heat. To spice up your build, the power supply unit is comes with Neon-Flex RGB that can be seen on the top of the device, and you can trigger different lighting modes by simply clicking the RGB Lighting button located right beside the power button. The capacitors inside the device are all packed with 100% Japanese Capacitors as well.

GAMDIAS CYCLOPS X1-1200P
Contact: Nation-Tech Sdn Bhd
Phone: (03) 4280 6636
Info: www.gamdias.com.my

Curved Goodness

The ROG Strix XG32VQ is a curved gaming monitor that is built to impress. Coming in at 32-inches with WQHD (2560 x 1440) resolution, ot delivers smooth visuals with its 144Hz of refresh rate and 4ms of response time, all on a 1800R curved screen. The display is also flicker free and is equipped with Trace Free technology as well. For the gamers, several GamePlus modes come pre-installed, allowing you to toggle between them at will. The monitor also sports Adaptive-Sync technology that minimises screen tearing and reduces choppy frame rates. Along with ASUS Extreme Low Motion Blur technology, moving objects will look smoother and sharper, giving you responsive gameplay action. Lastly, it also has ASUS's signature Aura Sync and Light Signature projection feature.

ASUS ROG Strix XG32VQ
Contact: Build Technology Supply Sdn Bhd, Servex (Malaysia) Sdn Bhd, ECS Astar Sdn Bhd
Phone: (03) 7955 3699, (03) 80246688, (03) 6286 8222
Info: www.build.com.my, www.servex.com.my, www.ecsm.com.my

Shoot For The Stars

The B250MDC is a motherboard from BIOSTAR that comes with a balanced set of features while maintaining high quality, all without burning a hole in your wallet, making it an ideal contender for those who are looking to build on a budget. As noted in the name, it is a B250 board, so it utilises Intel's B250 chipset, which is perfect for use in multiple different builds – be it in a gaming rig or just for office use. This micro-ATX board has a single PCIe slot for graphics card, dual DDR4 DIMM slots that can take up to 32GB of RAM at 2,400MHz, and four USB 3.1 Gen1 ports. Do note that it only comes with a DVI-D connector and one VGA Port.

BIOSTAR B250MDC Motherboard
Contact: Build Technology Supply Sdn Bhd
Phone: (03) 7955 1136
Info: http://www.biostar.com.tw/app/en/

Master The Air

The MasterAir MA410P is an upgraded version of Cooler Master's previous air cooler, the MasterAir Pro 4. It's designed to fit Intel's LGA 2066 and AMD's AM4 CPU sockets. There are four heat pipes utilising Continuous Direct Contact Technology 2.0, which creates 45% more contact surface area. The cooler also comes packaged with a MasterFan 120 Air Balance RGB and a wired RGB controller that allows you to switch up the colour of the fan. Now you can cool off your processor with the help of a quiet fan, while looking extravagant with its RGB choices.

Cooler Master MasterAir MA410P
Contact: Ban Leong Technologies Sdn Bhd, Build Technology Supply Sdn Bhd
Phone: (03) 7956 6300, (03) 7955 3699
Info: www.coolermaster.com

Be Swift Like The Wind

The Acer Swift 5 is a lightweight laptop wrapped with a beautiful design. It comes in two variations of Intel 8th Gen processor of 15-8250U or i7-8550U. Padded with an Intel UHD Graphics 620, 8GB of DDR4 memory, 256GB of internal storage and fitted with a 14-inch Full HD IPS multi-touch display. Acer has also mentioned that the device can last up to 8 hours on full charge. All the while weighing less than 1KG. It is also just 14.9mm thick! Moreover, you can unlock the device with just your fingerprint, or unlock it using face recognition via Windows Hello.

Acer Swift 5
Contact: Acer Sales and Services Sdn Bhd
Phone: 1 800 88 1288
Info: www.acer.com.my

Chiming In With AI Smartphones

OPPO has just recently announced the availability of their latest device, the OPPO A83 recently. The A83 is equipped with a Mediatek MT6737T processor, 3GB of RAM and 32GB of internal storage, which can be expanded with a microSD card of up to 256GB. It is also empowered by a 3,180mAh battery, and runs on an Android 7.1-based ColorOS 3.2. As for the camera, it sports a 13-megapixel rear camera and an 8-megapixel front camera, with the front camera capable of using the built-in AI technology to take better selfies for you. The cherry on top is the 5.7-inch HD+ Full screen display, plus the curved design, making the OPPO A83 nice to touch and hold. You can also unlock the device with your face thanks to facial unlock.

OPPO A83
Contact: OPPO Malaysia
Phone: 1800 88 6776
Info: www.oppo.com/my

Nom Away

Not to be confused with food, the Razer Nommo Pro is Razer's latest line of speakers made for the PC. The Nommo Pro is THX-certified, and comes with a 2.1 speaker system with Dolby Virtual Speaker technology for full gaming immersion. It is capable of delivering powerful audio experience with layers of range, depth and clarity. The speakers are designed with Dupont Kevlar coated driver, while the tweeters are silk-woven to deliver smooth and balanced highs. It also comes with a USB, Optical, Bluetooth and 3.5mm jack, along with a control pod that allows you to change up the volume, source and add a headphone easily. Razer Chroma is also available on these, allowing you to duke it out and enjoy your audio in bright RGB lights.

Razer Nommo Pro
Contact: Ban Leong Technologies Sdn Bhd
Phone: (03) 7956 6300
Info: www.razerzone.com

Boxing The Opponents

Recently, Cooler Master launched a refresh of their popular desktop case, the MasterBox Lite, by introducing the MasterBox Lite 5 RGB. It is now equipped with a tempered glass side panel, allowing you to showcase your build with no shame. Pack all your components into the casing with no issues – be it DIY liquid cooling loops or gigantic GPUs. Air coolers of up to 158mm tall can also be fit into the casing. You can even fit up to four 120mm RGB fans onto the build. Along with the DarkMirror front panel, you can still bask in the glory of your RGB build thanks to its translucent nature. The MasterBox Lite 5 RGB comes prebuilt with three 120mm RGB fans behind the front panel.

Cooler Master MasterBox Lite 5 RGB
Contact: Ban Leong Technologies Sdn Bhd, Build Technology Supply Sdn Bhd
Phone: (03) 7956 6300, (03) 7955 3699
Info: www.coolermaster.com

Marvo KG935

Price: RM179
Contact: GMC Worldwide Sdn Bhd
Phone: (03) 8023 0336
Info: www.gmcw.com.my

Keyboard Switches: Outemu Blue
NKRO: 6KRO
Interface: USB
Others: RGB
Dimensions: 450 x 40 x 140 mm
Weight: 850g

Performance:
Features:
Design:
Value:

Entry To Clicky Paradise

Mechanical keyboards are dimes of a dozen these days, but a highly affordable one like this is hard to find

By Matthew Yap

Mechanical keyboards are great for a variety of reasons, such as how satisfying they sound if it's a 'clicky' switch, or the responsiveness when compared to the sticky feeling you'd get from membrane keyboards. Unfortunately, mech keyboards are also expensive – most of the time. However, Marvo has introduced some rather affordable options instead, like the Marvo KG935 we have here.

For the design, Marvo went with the minimalist look that's more or less phased out the fancy and elaborate designs of the past. The KG935 is thin, slim and has very little bezel. As a result, it won't take up much space on your desk, despite it being a full-sized keyboard. Since it's a full-sized, it has 104 keys and switches, which rest on a thin metal plate that gives the entire keyboard a solid build. We're glad that there's little to no flex on the body, but there's a slight clacking sound when we tried to flex it and it wasn't because of a loose screw. However, we chalked this down to poor quality control and not an inherent flaw in the build design.

This keyboard is mostly black in colour, except for the very tacky looking silver chrome plastic on the edge; easily the worst part of the design. There's also no extra multimedia keys for easy music playback options and while there are pre-programmed FN+Function key combinations, it's not labelled on the keyboard at all. At the bottom, it has solid rubber pads that keeps it firmly in place, as well as two feet to adjust the angle and height of the keyboard.

Marvo provided a software to use with the keyboard, but it can only be installed via the mini disc included in the box and can't be downloaded only; Marvo's website doesn't even have this keyboard listed.

Once installed, users get access to a few standard features like backlighting adjustments and the ability to create custom keys. When the program is started, a layout of the keyboard is shown and you can click on any key to assign a custom keystroke, macro or a media file to it. To create the macros, just click on the 'Macro Editor' button. It's very basic, but works well enough in most cases. As for the backlighting, you need to click on the 'Light' checkbox to get access to 14 different lighting modes. Here, the brightness, speed and colour can all be adjusted.

It has a FN key, but the shortcut combinations are not labelled on the keyboard

This software is only available via a physical mini disc included in the box

+ Good tactile feedback

− No label for shortcuts

CHIP CONCLUDES

Comes with a lot of issues, some which can be annoying. But a mechanical keyboard at this price point is very hard to dismiss, so it's a great option for those on a low budget.

Segotep Halo 6 Mini

Price: RM139
Contact: GMC Worldwide Sdn Bhd
Phone: (03) 8023 0336
Info: www.gmcw.com.my

Motherboard Size: Micro ATX, ITX
Bays: 2x 3.5-inch, 2x 2.5-inch
Front Panel I/O: 2x USB 2.0, 1x USB 3.0, Audio In/Out
Fan Support: 1x 120mm (Rear), 2x 120mm (Front), 1x 120mm (Top)
Dimensions: 390 x 195 x 395 mm

Performance:
Features:
Design:
Value:

A Wallet-Saving Case

By Matthew Yap

ITX and affordable are normally not found in the same sentence, but Segotep has designed one that that fits that bill

There's an increasing number of PC enthusiasts out there that are interested in ITX chassis, but there aren't many options out there and many of them are expensive. But we got ourselves an exception this month in the form of the Segotep Halo 6 Mini, an ITX chassis made for those with small budgets.

Being an ITX chassis, the Segotep Halo 6 Mini is noticeably smaller than tower chassis. Its structure is mostly thin aluminium painted black, with some hard plastic around the front and transparent acrylic for the side and front panels. Overall, the build of this chassis is surprisingly very solid, with barely any flex to its structure.

Unusually enough, its right panel protrudes outwards around the middle, ostensibly to provide the chassis with some cable management space under the motherboard area. At the top, there is space for a 120mm fan, while the back also has one for a 120mm fan, as well as a cut out for the motherboard's rear I/Os and a power supply unit (standard ATX PSU). Finally, four feet with rubber bottoms are found at the bottom, elevating the entire case so you can lift it without scratching your desk.

For those who want to use the top space as an additional air intake, a dust filter was also included but has to be attached underneath the top panel manually; no adhesive or slot was added to keep it in place properly. There's also a dust filter at the bottom for the PSU's air intake.

After removing the acrylic side panel, which requires the use of a screwdriver for the four screws holding it in, we found a relatively open space inside. There is a small bay for two 3.5-inch HDDs at the bottom that can be taken out by removing the screws on the bottom and right side of the case, but there's no benefit in doing so. For 2.5-inch drives, two can be installed by attaching it to the space provided above the 3.5-inch drive bay using a compatible tray.

The front acrylic panel can be also removed, providing access to the two 120mm RGB fans on the front. However, note that the air intake areas lining the sides of the front panel aren't really designed to filter out dust very well, which means that the fans might need to be cleaned quite often.

Although space gets very tight once everything is installed, especially the PSU, working on this chassis isn't too hard. Other than the loose dust filter, we didn't encounter any issues while building in it.

To get to the front fans, the front panel must first be removed

There's no good way to secure this provided dust filter, other than to screw it on to the case along with a fan

+ Solid build RGB fans
− Loose dust filter

CHIP CONCLUDES
A solid build and an attractive price point makes this an ITX case worth considering.

ASRock Fatal1ty Z370 Gaming K6

Price: RM899
Contact: AMT PC Distributors Sdn Bhd
Phone: (03) 3344 1124
Info: www.asrock.com

Socket: LGA1151
Chipset: Z370
RAM Slots: 4
RAM: DDR4 4333+(OC) / 4266(OC) / 4133(OC) / 4000(OC) / 3866(OC) / 3800(OC) / 3733(OC) / 3600(OC) / 3200(OC) / 2933(OC) / 2800(OC) / 2666 / 2400 / 2133 non-ECC, un-buffered memory
Ports: 2x Wi-Fi antenna, 1x PS/2, 1x VGA, 1x DVI-D, 1x HDMI, 1x SPDIF, 1x USB3.1 Gen Type-A, 1x USB 3.1 Gen2 Type-C, 4x USB 3.1 Gen1, 2x LAN, 6x audio jack
Size: ATX

PCMark 10
Essentials: 8,563 points
Productivity: 6,086 points
Digital Content Creation: 6,795 points

Performance:
Features:
Design:
Value:

Fatal Gaming

By Nixon Ng

ASRock unleashes their expertise to create a motherboard that is ready for gamers and enthusiasts alike

The all new Fatal1ty Z370 Gaming K6 gives you the platform needed to run the latest eight generation Intel Core processors. Although sharing the same socket as Kabylake and Skylake processors, you are unable to use older processors together with the Z370 chipset, so if you're upgrading you have to get a new processor as well.

Jumping straight into the motherboard, the K6 has four RAM DIMMs that support RAM speed of up to 4333MHz when overclocked. The next thing we noticed were the PCI-e Steel Slots, which protect PCI-e slots from signal interference as well as providing support for heavy graphic cards. Moving on, there's dual Ultra M.2 slots that can hold SATA3 6Gb/s M.2 modules for high speed storage. Additionally, there are six SATA3 6Gb/s ports that support RAID 0, RAID 1, RAID 5, RAID 15, and Intel Rapid Storage Technology.

On the back are all the USB ports and connectivity you'll need, and what makes the K6 stand out a little bit is that it has a VGA port - something that is quite rare nowadays. The addition of a VGA port will be a good sight for those who own older or cheaper monitors. You will also find that the audio is by Creative Specifically, the K6 has the Creative Sound Blaster Cinema 3 sound chipset built into it. It provides a great listening experience that is free from background noise or hiss, while making watching videos and movies enjoyable when connected straight to the audio ports.

Aesthetically, the K6 doesn't really stand out, but the RGB LED's on the K6 do catch our interest. On the K6 you will find RGB LED headers so you can further add some rainbow shine to your build, but you need to download the ASRock RGB LED utility to customise the LEDs. While speaking of headers, a Water Pump Header is also provided and supports the most popular water pumps. You are also able to adjust the voltage to further customise your cooling system and performance.
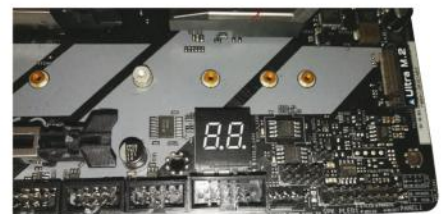
A debug LED is always a welcomed feature

PCI-e Steel Slots add greater stability for heavier graphic cards

+ Performance
PCI-e Steel Slots
VGA port

— None

CHIP CONCLUDES
A solid motherboard to use when building your next project.

ALTEC LANSING Twin Bluetooth Speaker

Price: RM399
Contact: Alcom Networks Sdn. Bhd.
Phone: (03) 9286 2888
Info: sales@myalcom.com

Frequency range: 120Hz–18,000Hz
Connectivity: Bluetooth 4.1, 3.5mm
Battery: 550mAh (8 hours)

Performance:
Features:
Design:
Value:

Monozygotic Speakers

By Nixon Ng

Even if you lose one at least you know the other one will still work

Portable speakers usually come as a complete but singular device, but the ALTEC LANSING Twin Bluetooth Speaker comes as a pair of speakers. Why is this better you ask? Well, one advantage is that you can get some real stereo action going on, since you can place the speakers separately, allowing you to have a proper left and right channel.

Additionally, these speakers can be used independently when not paired with each other. That means you'll be able to use them without the other, so if one of them breaks down you still have another to use. Those are some of the advantages of this twin speakers, but there's also how easy it is to setup. Hold the power button on both speakers for a short while until it pairs, and that's it. After that, just pair it with your media device.

The sound is pretty decent from these speakers and it is a great device to carry around in your bag, especially since you can just pick one up or the other. With two speakers it also means you get more coverage outdoors, so that you won't need to have everyone crowd around a single speaker. There's also a built-in mic in the speakers so you can use it not only for music but for like Skype, or Discord. It works especially well for mini conference calls or family calls.

Battery life is quite good too, being able to last up to 8 hours depending on usage. But in our experience with it, it'll definitely be enough for any other use cases. The only issue we really had with it was that we had to charge both speakers separately, since they're not a whole; we had to charge one speaker then come back to charge the other. Also, it uses a micro USB cable to charge, so you'll need an additional cable and USB port to charge the second speaker. The AUX port found on each speaker also allows you connect additional speaker devices, so there's always the option to expand your setup.

micro USB port to charge and an AUX jack

+ Small Speakers can be used separately Easy setup

− Speakers charge individually

CHIP CONCLUDES
If you need a portable speaker and like the idea of getting two for the price of one (not exactly, it still acts as such), this one is worth looking into.

ASUS ROG Strix GL503

Price: RM9,299
Contact: Build Technology Supply Sdn Bhd, Servex (Malaysia) Sdn Bhd, ECS Astar Sdn Bhd
Phone: (03) 7955 3699, (03) 80246688, (03) 6286 8222
Info: www.build.com.my, www.servex.com.my, www.ecsm.com.my

Display: 15.6-inch Full HD
Processor: Intel Core i7-7700HQ
Ports: 1x mini Display Port, 1x USB 3.1 Type-C, 4x USB 3.0, 1x HDMI
Memory: 16GB DDR4
Storage: 1TB HDD + 256GB M.2 SSD
Others: Illuminated Chiclet Keyboard with 4-Zone RGB
Dimensions: 384 x 262 x 23 mm
Weight: 2.5 KG

PCMark 10 Essentials: 7,806 points
PCMark 10 Productivity: 7,856 points
PCMark 10 Digital Content Creation: 6,276 points
3DMark Fire Strike Ultra: 3,971 points
VRMark Cyan Room: 5,054 points

Performance:	▣ ▣ ▣ ▣ ▢
Features:	▣ ▣ ▣ ▣ ▢
Design:	▣ ▣ ▣ ▣ ▢
Value:	▣ ▣ ▣ ▢ ▢

Brushed Outside, Carbon Inside

Great design with some souped up specs to kick up the 2018 year for ASUS

By Rikco Shim

The GL503 is one of ASUS' latest laptop and it comes with several tricks up its sleeve. It is designed with a brushed metal look on the front and is wrapped with carbon skin on the interior. It also comes with a RGB-backlit keyboard that can be customised using the ROG Aura Core software. Customising the colours are as easy as pie, allowing you to show off your own combination of colours. Do note that you can only customise the numbered sections instead of every single key. The WASD keys are also coloured differently compared to normal keys, so you can reposition your fingers to the right keys during intense moments with a quick glance.

As for gameplay performance, it managed to stay relatively stable while we tested it on Witcher 3 and Battlefield 1. Shrubbery and details for The Witcher 3 loaded in without any issues and aside from the occasional pop-ins, the laptop kept the gameplay to a steady 60fps. We only noticed some slight drops when it's loading the busy towns of The Witcher 3.

While running benchmarks and gaming, the fan remained at a low noise level and would most likely not hamper your experience while using the laptop. You can increase the fan speed and it will be slightly louder, but it helps with keeping your device cool. However, when you are gaming and using the built-in mic, it is probably better to keep it on a low volume, rather than suffering the wrath of your teammates. The wrist rest area also remained cool throughout gaming, so you don't have to worry about scorching wrists.

There are a few additional keys present on the keyboard that can be used to change the volume or mute your mic, as well as a button dedicated for the ASUS ROG Gaming Centre, which can be used to show you detailed info of your laptop. This laptop is also somewhat modular, with the back cover being removable, so that you have options to upgrade the RAM and internal storage. You can do this easily by yourself without soliciting professional help, provided that you know what you are doing.

The four-Zone RGB keyboard

The back of the laptop with a very nice to touch brushed metal design

+ RGB Keyboard Modularity Design

— None

CHIP CONCLUDES

Overall a great addition to ROG's laptop portfolio, but it is also at a price which not every gamer could opt for.

Plantronics BackBeat 505

Price: RM499
Contact: Ban Leong Technologies Sdn Bhd
Phone: (03) 7956 6300
Info: www.plantronics.com

Driver size: 40mm
Impedance: 32ohms
Frequency range:
Connectivity: 3.5mm jack, Bluetooth 4.1
Weight: 155g

Performance:	▢▢▢▢▢
Features:	▢▢▢▢▢
Design:	▢▢▢▢▢
Value:	▢▢▢▢▢

By Nixon Ng

Hitting The Streets

Nothing better than being able to listen to your tunes any time any place

Whether you're out to sea or braving the wilderness, you'll have to manage your sanity. After all, being outside is exhausting to some. So, why not find some solace in music? Portability has become a major trend in our current society and why not. Convenience is what people love, and the ability to carry things around - when once they weren't portable - is a huge boon.

With everyone getting into the whole wireless shindig, there are so many choices for wireless headphones in the market. One of them would be Plantronic's BackBeat 505. The BackBeat 505 is great for those who want to get into wireless headphones with its reasonable pricing. With a small and compact body, you can slip this into a purse or backpack without taking much space, plus the earcups swivel so it'll be flat inside your bag. Build quality doesn't feel the most solid, but it should handle the daily abuse minus sitting on it.

Comfort is also good, with soft pads that have a bit of resistance to them when put on, but we assume that'll it'll soften out in time after use. There are two ways to connect the BackBeat 505 to your device, either using the Bluetooth pairing feature or through a 3.5mm jack found on one of the cups. Direct connection with the 3.5mm is simple as plug and play, but the Bluetooth pairing is just as easy. All you have to do is move the power switch and hold it in the Bluetooth trigger point for about 1-2 seconds and you'll hear when it's ready to pair. Then, just pair it like any other Bluetooth device with your media player and voila.

Audio quality wise, the BackBeat 505 has a strong low-end and decent mid-range. It's warm and not very fatiguing, so those who enjoy bass may enjoy this more than most. The trebles or highs can sound thin, however, most noticeable for string instruments. Overall, it has a decent sound profile and will satisfy most of your daily music needs.

Easily control the BackBeat 505 with the buttons found on the cups

+ Portable
Easy-to-use
Great budget
wireless
headphone

– Treble
Feels a tad flimsy

CHIP CONCLUDES

One of the better portable wireless headphones in its price range and we highly recommend it as your first foray into wireless audio when on a budget.

ASUS ZenFone Max Plus

Price: RM899
Contact: Dynamics Distribution Sdn Bhd, ECS Astar Sdn Bhd
Phone: (03)-8024 2100, (03)-6286 8222
Info: www.asus.com/my

Operating System: Android 7.0 Nougat
System on Chip: Mediatek MT6750T
Memory: 4GB
Storage: 32GB, expandable with microSD
Display: 5.65-inch 720 x 1440 IPS
Camera: 16+8MP (dual rear), 16MP (front)
Connectivity: Bluetooth 4.0 + A2DP + LE, 802.11n, Wi-Fi Direct
Dimensions: 152.6 x 73 x 8.8 mm
Weight: 160g

Antutu: 39,034 points
PCMark for Android: 3,143 points
3DMark Slingshot Extreme: 454 points

Performance:
Features:
Design:
Value:

By Matthew Yap

Lasting Value

A lot of smartphone features tend to be limited to high-end models, but this model proves that it isn't always the case

For a few years now, ASUS has one of the most bang-for-buck option when it comes to midrange smartphones – the ZenFone Max series. Recognising this, the brand has decided to rebrand this series as the Max Plus series, with the M1 the first model now in our hands for review.

Once again, the Max Plus M1 sees the familiar curved back and tapered edges that we expect from ZenFones. From edge to edge, it's a device that measures almost 6.75 inches, which sounds massive. But with the now popular 18:9 aspect ratio means that it doesn't feel wide when held, while containing a large 5.7-inch display that's great for games and videos. The body itself is metallic, but it's quite thin and there's some flex to its aluminium body, so having a silicone case included to protect it was a good addition.

Despite the slight negative in build quality, the device itself is decked out with plenty of positives in features. Not only does it have a fingerprint sensor at the back, it also has two rear cameras (rare in this price range). Besides that, its SIM tray supports two SIM cards and a SD card.

Powered by MediaTek's MT6750T chipset, the Max Plus M1 does well enough for basic tasks and HD multimedia. During our time with it, we didn't experience unexpected app crashes or programmes hanging, unless we tried to run too many apps and the device runs out of RAM. It's more than serviceable for the average Joe, but it's no powerhouse, so don't expect to play high-end 3D games on it without noticeable lag.

Besides its large screen for videos, the other obvious feature of this smartphone are its cameras. On the Max Plus M1 is a dual-rear camera setup consisting of a 16 and 8-megapixel camera, as well as a front shooter that's also has 16 megapixels. The rear 16-megapixel camera is complemented by the 8-megapixel wide-angle camera, allowing the user to capture images with a 120° angle. In addition, the user also gets to take pictures in four different aspect ratios, which can be useful for those who are active on social media.

Of course, it's not a Max series smartphone without good battery life. In fact, the M1 has a large 4,130 mAh battery, making it possible for you to use it for more than a day without needing to charge. ASUS has also retained the reverse charging feature, which is great if you carry multiple devices and don't always have a convenient way to charge them.

A dual-rear camera setup on phone at this price range is still quite rare to see

The near bezel-less design on smartphones is the biggest trend now

+ Battery life
  Cameras
− Build quality

CHIP CONCLUDES
While the build quality is a bit suspect, the features it provides makes it one of the best choices you can get at that pricing.

Razer Tiamat 7.1 V2

Price: RM989
Contact: Ban Leong Technologies Sdn Bhd
Phone: (03)-7956 6300
Info: www.razerzone.com

Driver size: 40mm(sub), 30mm(front/centre), 20mm(rear/side)
Impedance: 16ohms
Frequency range: 20Hz-20,000Hz
Ports: 4x 3.5mm jacks
Connectivity: USB and audio jack

Performance:
Features:
Design:
Value:

Sound Is Vision

By Nixon Ng

Have the on-up on your enemies while hiding behind walls and take them by surprise

As you trudge through the wastelands and the battlefields in the cyber world, you immerse yourself deeper into the game the one thing that will affect you the most is sound. And what's a better way to experience your surroudings than with a 7.1 surround sound headphone? Nothing feels better than forgetting the world around you as you jump into a whole new one.

The Tiamat 7.1 V2 brings 7.1 surround sound right on your head, by using a total of 10 drivers - five in each cup - to provide gamers with an immersive experience. The surround sound works great while we played FPS games, and it comes as an advantage to know accurately where your enemies are when close to you. When it comes to games like PUBG and CS:GO where a tenth of a second would end the game for you, having information on your opponents is key to winning.

At first the Tiamat looks bulky and we thought that it might be heavy once on your head, but it turned out different than expected. The headband does a great job of alleviating much of the weight and instead directs the weight to provide a tighter clamp over the ear. Comfort was not an issue at all, because the Tiamat is incredibly comfortable with the pads being supple and the clamp being just right. Although we do think the sound isolation could be better, since quite a bit of outside noise does get in.

We also like the audio control unit, because it not only allows us to control each channel separately when in 7.1 mode but also acts as an audio passthrough, so you can connect your speakers to the control unit and easily switch between them at the push of a button. Also, if you're fan of some RGB bling, the Tiamat also sports Razer Chroma. With it, you can even complete your whole RGB experience using Razer Synapse along with whatever other RGB peripherals and hardware you have.

The controller not only controls every channel but also acts as a audio passthrough

+ Comfort
Sound control unit
7.1 surround sound

— None

CHIP CONCLUDES
A great gaming headset for the FPS player. Not only does it provide excellent comfort, it also gives you an advantage.

Illegear Fang

Price: RM189
Contact: Illegear Sdn Bhd
Phone: (03) 2858 7399
Info: www.illegear.com

Sensor: Pixart 3325
DPI: 800-10,000
Polling Rate: 1,000Hz
Programmable Buttons: 7
Dimensions: 122 x 66 x 38mm
Weight: 113g

Performance:
Features:
Design:
Value:

By Nixon Ng

Bite Down Hard

A high performance gaming mouse that believes in an ergonomic and clean design

The most important tool in a PC gamer's arsenal is their mouse. No matter what genre of games you play, the mouse is always the most important part of your gaming experience. A good mouse doesn't make a player better, but lets the player play the game at their fullest potential. With the mouse being one of the most used part of a computer, an upgrade doesn't seem like a bad idea.

Illegear's Fang adopts a minimalist approach to the gaming mouse, doing away with all the extras commonly found on mice these days. Instead of providing all the bells and whistles of the modern day, the Fang brings it back down to earth and concentrates on doing things right. With the sensor being one of the most important aspects of a mouse, we were satisfied with the use of the Pixart 3325 sensor. It has great tracking and precision across the different surfaces that we tested on, which included hard surfaces as well as cloth.

The feel of the Illegear Fang is comfortable thanks to its ergonomic shape and can be used by both palm and claw grip gamers. Technical specs wise the Fang has a polling rate of 1,000Hz and a DPI of between 800-10,000. High DPI such as the Fang's is favoured by RTS players, who require making many quick movements and also looking across the map, while the lowest DPI of 800 is just right for many gamers. But there are plenty of professional gamers that use lower DPI's such as 400 and 200, which makes the Fang a favourite of both genres.

Other than that, the Fang has great Omron switches that provide very satisfying clicks and are also rated to be highly durable. Buying into the RGB trend, Illegear places 16.8 million RGB colours into the Fang's logo, scroll wheel and sides, which are programmable using the Fang Commander Software. Also, the Fang's cable is a 1.8m black braided cable that provides great protection and doesn't get in the way of the mouse's movement.

Textured sides give a great feel while providing additional grip

+ Ergonomic
Great value

— None

CHIP CONCLUDES
If you don't feel the need to splash out on a more expensive gaming mouse, check out Illegear's Fang.

ASUS ROG MAXIMUS X FORMULA

Price: RM1,999
Contact: ASUSTek Computer Malaysia
Phone: (03)-2131 6650
Info: www.asus.com/my

Socket: LGA1151
CPU: Intel Z370
RAM Slots: 4
RAM Type: DDR4
Ports: 1 x DisplayPort, 1 x HDMI, 1 x LAN port, 1 x USB 3.1 Gen 2 Type-A, 1 x USB 3.1 Gen 2 USB Type-C, 4 x USB 3.1 Gen 1, 4 x USB 2.0, 1 x Optical S/PDIF out, 5 x Audio jack, 1 x Clear CMOS button, 1 x USB BIOS Flashback Button, 1 x ASUS 2x2 Wi-Fi 802.11 a/b/g/n/ac

PCMark: 10 points
Essentials: 9,096 points
Productivity: 6,186 points
Digital Content Creation: 6,805 points

Performance:
Features:
Design:
Value:

Formulate A Plan

By Nixon Ng

A piece of hardware you won't regret picking up when you go shopping for your next gaming rig

Has an upgrade been long waiting for you? Well, it's time to put the pedal to the metal and aim big. The time is now, to unleash your inner enthusiast and become the overclocker you always wanted to be. Now, let's dive into one of ROG's flagship motherboards that's packed to the brim with plenty of features suitable for gamers and modders.

The ASUS ROG MAXIMUS X FORMULA uses the Z370 chipset and the LGA1151 socket, which supports the latest eight generation Intel Core processors. It's important to note that the new socket will not support older processors despite the similar "fit". Right out of the box the MAXIMUS X impresses us with its design, because not only does it have a beautiful I/O shield but also a solid backplate. Overall, the MAXIMUS X is built like a tank and we're not worried of breaking it.

The motherboard takes its cooling seriously with a specialised cooling features packed into its entire surface. Take for example the CrossChill EK found close to the top of the motherboard. Using redesigned cooling fins you can deliver water cooling loops to to cool the MOSFETs. It also uses standard fittings, which easily fits into newer or older cooling setups. But that's not all, even your M.2 SSD's get a piece of the cooling hijinks with a M.2 Heatsink found under the glowing ROG eye logo. Furthermore, you can customise your headers to monitor and react to three user-configurable thermal sensors via Fan Xpert 4.

Something we've never seen before is probably the LiveDash OLED panel, a small 1.3-inch display that shows useful information such as CPU frequency and temperatures, as well as fan speeds. Aura Sync RGB lighting is also available on the MAXIMUS X, if you didn't already see it coming, which can be further customised with RGB strips using onboard RGB headers.

One thing we also love is how overclocking is made easy for those just beginning to dabble in it. The MAXIMUS X does this with its 5-Way Optimisation, which dynamically optimises your computer, providing overclocking together with cooling profiles that are suited for your computer. As you change parts in the future, the optimisation will also work to bring the best out of your computer.

The MAXIMUS X FORMULA keeps your M.2 running smooth and cool with its M.2 Heatsink

The back I/O ports of the MAXIMUS X FORMULA are well made and show attention to detail

+ Cooling design
Backplate
LiveDash and Q-Code

— None

CHIP CONCLUDES

With amazing design and features, not to mention performance that satisfies, the MAXIMUS X FORMULA is something worth showing off to your friends.

Wiko View Prime

Price: RM1,199
Contact: Wiko Mobile
Info: http://my-en.wikomobile.com/

Operating System: Android 7.1 Nougat
System on Chip: Snapdragon 430
Memory: 4GB
Storage: 64GB, expandable with microSD
Display: 5.7-inch 720 x 1440 IPS
Camera: 16MP (rear), 20+8MP (front)
Connectivity: Bluetooth 4.2 + A2DP + LE, 802.11n, Wi-Fi Direct
Dimensions: 152.3 x 72.8 x 8.3 mm
Weight: 162g

Antutu: 43,609 points
PCMark for Android: 3,609 points
3DMark Slingshot Extreme: 296 points

Performance:
Features:
Design:
Value:

Double The Selfie Goodness

While most eye the fanciest devices, Wiko focuses on building good midrange devices that more people can afford

By Matthew Yap

The dust seems to have settled and Wiko has become one of the more commonly seen brands around, catering mostly to the midrange segment for smartphones. This time around, we get to test the Wiko View Prime.

At first glance, it's hard to tell that the Wiko View Prime is only a midrange device. It's comes with a fairly large 5.7-inch display based on the 18:9 aspect ratio, which keeps the device from feeling wide but does make it taller. Available in several colours, the one we have is called Deep Bleen, a mix of dark blue and green that not only looks good but also unique. The aluminium alloy body is quite thin but feels well built, so it maintains a very light weight without being flimsy.

What stands out on the View Prime is definitely its dual front facing cameras, consisting of a 20-megapixel and 8-megapixel pair. At the back is a more orthodox single 16-megapixel camera with LED flash, as well as a fingerprint sensor below. Other than that, the other components are quite standard, with the buttons on the right, SIM tray on the left and headphone jack on the top.

Considering that Wiko likely made this phone for social media users, performance was just average. Although the Snapdragon 430 chipset can adequately handle any regular task, it shows visible lag while running high-requirement programmes, such as when we did our benchmarks. It does have 4GB of RAM, so checking out your social media feed and watching a YouTube video at the same time using the split screen function is possible. But run too many apps and Android automatically starts closing less active ones.

With the new 18:9 aspect ratio, 1440x720 resolution screens like the one here is becoming the next 720p. It offers a wider screen, which can be great for taking pictures or even for certain types of games like racing games. However, the screen itself isn't that good for videos, since it lacks sharpness. This is not always apparent, but becomes noticeable when viewing videos or movies with fast visual transitions, such as action movies.

What's great for this device though, is its dual front facing cameras. The 20-megapixel lens is f/2.0 aperture and comes paired with a soft light flash for more natural shots, without the harsh light that comes with flashes. There's also a portrait mode, beautification feature, and even HDR to make your selfies look better.

The dual front cameras can be used to take great self-portraits

+ Dual selfie cam
Good build

− Performance

CHIP CONCLUDES

Although it doesn't have a lot of bells and whistles, the good build and two front facing cameras are compelling reasons to consider this smartphone.

ViewSonic VP3881

Price: RM4,999
Contact: Servex (Malaysia) Sdn Bhd,
Achieva Technology Sdn Bhd
Phone: (03) 8024 6688, (03) 79551768
Info: http://ap.viewsonic.com/my/

Display Size: 38-inch curved
Resolution: 3840 x 1600
Connectivity: 4x USB 3.0, 1x USB 3.1 Type-C, 2x 3.5mm
Audio In & Out, 2x HDMI, 1x Display Port
Refresh Rate: 75Hz
Response Time: 14ms
Viewing Angle: 178-degree vertical/horizontal
Dimensions: 896.0 x 629.2 x 298.8 mm
Weight: 12.7 KG

Performance:
Features:
Design:
Value:

Widen Your View

By Rikco Shim

ViewSonic's latest curved screen monitor with amazing colour capabilities

ViewSonic is bringing out yet another curved screen monitor, but this time it is designed to be used for professionals who require impeccable colour accuracy for their work. The design is simple and the monitor is beautiful to look at.

Right out of the box, it only requires a simple assembly of connecting the parts together and voilà, you can enjoy your new display in all its curved gloriousness. However, we did struggle for about 10 minutes before we located the power connection as it is well hidden behind the stand. We even had to dig out the manual to find it. By hiding it behind the stand though, it is in a perfect position for cable management, so it is hard to fault the decision of having it there.

The monitor comes with a 38-inch display, an IPS Panel, and capable of 3840 x1600 resolution, with 300 cd/m2 of brightness. It has a 14ms (or 7ms when running in overdrive) of response time, as well as 75Hz of refresh rate. Switching modes and changing settings on the monitor is fortunately quite easy, with the tactile buttons located at the back of the monitor.

Testing the monitor was easy as well. It comes with a Delta E<2 Calibration and HDR10 Content Support. As for HDR10, the monitor is equipped with the capability to decode HDR10 video signals into signals that can be viewed by the monitor. HDR allows you to view pictures or media in more vivid colours that pop out, showering your eyes in bright colours.

As mentioned, it is a monitor built for professional colour work, rather than a gamer monitor. It comes with three USB 3.0 Type A ports, one USB 3.0 Type B port, a singular USB 3.1 Type C port with two HDMI ports and one Display Port, allowing you to plug and daisy chain a singular monitor to more than one computer easily. With the presence of USB 3.1 Type-C port on the monitor, you can also charge your devices through your monitor.

If you wish, you can even purchase a separate ViewSonic Colorbration Kit, which allows you to easily calibrate your monitor for important tasks so you will always get the colour that you intended. Overall, it is a beautiful monitor that comes with great colour reproduction, 38-inch of viewing pleasure, and integrated speakers. You can get all your work done with just a single monitor on your desk, saving you valuable space for everything else.

The buttons on the side for easy configuration

A slender stand for a massive monitor!

+ Great colour reproduction
Calibrated right out of the box

— HDR10 content is decoded

CHIP CONCLUDES

Overall a great monitor for professionals who need accurate colours, with the added advantage of having a massive 38-inch curved screen.

MSI Optix G27C2

Price: RM2,520
Contact: JW Power Marketing Sdn. Bhd.,
Mediaforte (Malaysia) Sdn. Bhd.
Phone: (03) 2148 1307, (03) 7960 6868
Info: my.msi.com

Panel Type: VA
Display Size: 27-inch
Resolution: 1920 x 1080
Connectivity: 1x HDMI, 1x DisplayPort, 1x DVI
Refresh Rate: 144Hz
Response Time: 1ms
Viewing Angle: 178°(H), 178° (V)
Dimensions: 619 x 451 x 239 mm
Weight: 5.8kg

Performance:
Features:
Design:
Value:

Crowning Debut

First tries don't have to be awkward and MSI proved this with an excellent entry for the high-end gaming monitor market

By Matthew Yap

With how quickly the esports industry is growing and the continue dominance of PC gaming, it's no wonder that many brands are looking to expand into related hardware. MSI has done the same, surprising us a few weeks ago with a surprised called the MSI Optix G27C2.

The Optix G27C2 is a 27-inch curved gaming monitor and it's pretty well made for MSI's first foray. It comes with a brushed matte hard plastic body and a stand with a solid steel base. The overall colour scheme is black and grey, with some dark maroon colour covering a few parts of the stand and body for that little bit of personality.

Build wise, it's very solid, despite the stand feeling a bit hollow on the inside. Considering that it weighs 5.8kg as a 27-inch monitor, we feel that it's a good balance; it's enough to support the main display's weight, yet light enough in case you need to move it or adjust its placement. Also, since it only has tilting and no swivel, rotate or height adjustment, it's possible that you will find the need to adjust it every so often.

Setting the monitor up was simple enough, though a screwdriver – to screw the base to the stand and then the stand to the main display – was needed. The ports are down-facing, but are clearly labelled on the back, so plugging the cables in wasn't difficult either. In terms of port availability, MSI has included one each for DVI, HDMI and DisplayPort on the left side of the back, while the power input is a standard 3-pin that's on the right.

Being a VA panel, the Optix G27C2 strikes an excellent balance in refresh rate, colour reproduction (can go up to sRGB 110%), and brightness levels. The image quality also comes out quite sharp and the viewing angles are superb, making it great for not just gaming but also movies. Due to the larger screen size and curvature, the display also feels more immersive and natural. However, it does require that the user sit an optimum distance from the monitor.

In addition, adaptive sync can be enabled from the monitor's OSD, which then reduces screen tearing. Without it, fast action games can show some tearing indeed, but once enabled the visuals on games like Battlefield 1 smoothen out. Of course, the drawback is that there's a minor dip in FPS.

Its port selection means that even old GPUs can use it

The OSD is fairly easy to use

+ Great balance of specs
Curve feels natural

— Lacks ergonomic adjustments

CHIP CONCLUDES

Great as a gaming monitor and can also perform well in movie playback, making it a great choice for your main gaming screen.

Sony NW-ZX300

Price: RM2,599
Contact: Sony (Malaysia) Sdn Bhd
Phone: 1 300 88 1233
Info: www.sony.com.my

Output: 3.5mm, Balanced
Playback: MP3, VBR, FLAC, DSF,DFF, M4A
Display: 3.1-inch TFT
Connectivity: Bluetooth, NFC
Storage: 64GB internal, can be expanded with microSD
Battery: 26 hours of FLAC playback
Others: DAC Function
Dimension: 57.7 x 120.4 x 14.9 mm
Weight: 157g

Performance:
Features:
Design:
Value:

Taking A Walk Back To The Past

Bringing high-quality on the move with a brand-new Sony Walkman

By Rikco Shim

Sony has been in the audio business for a long time, and was once revolutionary with their Walkman and Discman. Before we had mobile phones and streaming apps, such devices were our main source of portable music. But enough of the past, let's take a look at Sony's latest Walkman, the NW-ZX300.

The NW-ZX300 may seem like a hefty device, but it only weighs about 157 grams, which is not too heavy to be slotted in your pocket or your backpack. It is also of similar size to your smartphone, but way thicker than one. Its design is simplistic and beautiful – the back of the device is a non-slip material that helps you with gripping the device, while the body is a rigid aluminium frame that offers strong resistance to electrical noise for clear and stable sound. The 3.1-inch touchscreen also has matte finish for smooth control and less fingerprint residue. As for the buttons, they are located on the right side of the device, with your standard fare of play/pause, navigation, volume and power, as well as an additional slider to lock the touchscreen from accidental touches while in your pocket. At the top of the device, you can use either a Balanced cable, which fits a 4.4mm jack, or a regular 3.5mm jack.

The device is easy to navigate thanks to an intuitive UI design. Adding music to it is also a breeze - simply plug in the device to a computer using the provided WM cable, and transfer your music with a simple drag and drop. You will also be charging the device with the same cable. According to Sony, the device can last up to 26 hours of 96 KHz FLAC High-Resolution Audio playback, and volume output does influence playback time as well. However, it is worth noting that the volume is on the lower end, and might be insufficient for your more demanding headphones. However, you can turn on high-gain output to make it louder.

A benefit to this device is with its ability to be paired wirelessly to Bluetooth earphones or headphones, easily negating whatever issues you have with wired connection. Bluetooth connection is easy, but when you are using the device and it is paired, using the menu will sometimes cause the music to glitch out. If you are planning to listen to music without stutters, it is best to just be lost in the music.

An added benefit to this device is with its ability to be used as a DAC for your computer. So if your computer audio is not up to par, simply just plug this device into your computer and with a few button clicks, instantly improve your computer audio capabilities.

The side buttons of the NW-ZX300

The jack on top of the device, one for 3.5mm and one for Balanced

+ Sufficient storage
DAC capability
Can be paired wirelessly

— Price

CHIP CONCLUDES
Overall, a great Walkman if you are fussy about the audio quality of your audio players, with an added DAC function for computer audio.

Sony WF-1000X

Price: RM899
Contact: Sony (Malaysia) Sdn Bhd
Phone: 1 300 88 1233
Info: www.sony.com.my

Driver size: 6mm
Frequency Response: 20Hz – 20,000Hz
Ports: 1x microUSB (Charging Case)
Connectivity: Bluetooth, NFC
Battery: 3 hours (On) / 35 hours (Waiting)
Sound Modes: Noise Cancelling, Ambient Sound
Dimensions: 103.0 x 42.6 x 24.5 mm (Case)
Weight: 6.8g (Earbuds) / 70g (Case)

Performance:
Features:
Design:
Value:

By Rikco Shim

Life Without Wires

Sony's very first truly wireless earbuds that is designed to keep your music tangle-free

Everyone consumes their audio in different ways. Some prefer it by blasting their face off with loud music, some discreetly with in-ear earphones, and some flaunt off their latest colourful headphones. However, in recent years, we have seen more competition from in-ear earphones, especially with the meteoric rise of wireless devices. Sony is not new to the music industry, and has been revolutionary with their products over the years. This time, they boldly introduce a new product within their wireless genre, the WF-1000X, a pair of wireless earbuds with Noise cancelling capabilities.

The WF-1000X at first glance when unboxing gives off a unique look that screams wireless and its transparent design on parts of the earbud to attract the eye. In fact, we got our hands on a Gold variant that is definitely a looker. Under the earbuds, you are also presented with a case that allows you to charge your earbuds. Upon closer inspection, you will realise that there are no USB ports or anything of the like on the earbuds themselves, and the only way to charge it is via the charging case, which is in turned charged using a micro USB cable. You are also given a few extra tips to use on your earbuds, which you can choose based on your preference. But for the best audio insulation and overall safety, it is best to find one that fits snugly in your ear. Simply slip them into your ears, and twist them a little to secure a fit – voilà, you are done.

To turn on the earbuds, simply click and hold the button on the earbuds. Pair it to your intended device and you are good to go. These are capable of delivering fair soundstage along with crisp vocals, but it does fall slightly below when it comes to bass. By tapping the button on the left earbud when it is on, you toggle between ambient sound, noise cancelling or off, giving you choices for the amount of noise you wish to pay attention to.

However, in comes the trouble after a short test. Unfortunately, we experienced multiple audio drop-outs on the right earbud. With the left earbud (Master), we have not encountered this issue at all, and it maintained stable connection throughout our testing. The audio has to go through the master before it gets passed to the right earbud (Slave). If you are using it with a smartphone, you can download the "Headphones Connect" app that allows you to switch from "Priority on sound quality" to "Priority on stable connection". This helps slightly, but drop-outs on the right earbuds remained. We also found that sometimes when you place your hands over the earbuds, the music cuts out as well. But we also managed to find a quick fix to this: Simply disconnect and unpair the earbuds from your device and go through the pairing process once again.

Overall, it is a decent attempt at a pair of wireless noise cancelling earphones with good sound quality, but falls slightly short with random disconnecting issues.

The charging case with the earbuds inserted
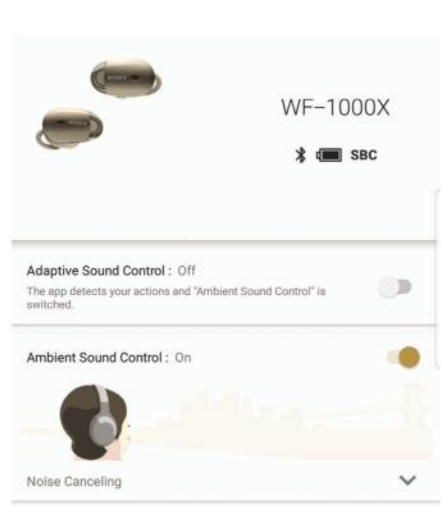
The Headphones Connect app that lets you tweak your earbuds

+ Wireless
Decent battery life
Earbuds automatically turns off when not in use

− Malfunctioning right earbud sometimes

CHIP CONCLUDES

A decent first try for a wireless earbud that's capable of outputting great quality audio, but will require a fix for the random audio drops if they want to contend with Apple's Airpods.

ASUS RT-AC86U

Price: RM1,569
Contact: ASUSTek Computer Malaysia
Phone: (03) 2131 6650
Info: www.asus.com/my

Ports: 1x WAN, 4x LAN, 1x USB 2.0, 1x USB 3.0
MIMO: Yes
Network Standard: IEEE 802.11a, IEEE 802.11b, IEEE 802.11g, IEEE 802.11n, IEEE 802.11ac, IPv4, IPv6
Encryption: 64-bit WEP, 128-bit WEP, WPA2-PSK, WPA-PSK, WPA-Enterprise , WPA2-Enterprise , WPS support
Dimensions: 220 x 160 x 83.3mm
Weight: 872g

Performance:
Features:
Design:
Value:

Everyone Needs Networking

By Nixon Ng

All your home and office networking needs are settled with the ASUS RT-AC86U

Just when you think, "Oh no! Not another router," people fail to notice how important a router is whether it's home or business networking. People wonder why routers can cost so much when there are smaller and cheaper routers that already work well for them. For those who are satisfied, good for you. But as more data is used and transferred over the network these days, soon you'll find that maybe the problem isn't with your internet, but with your hardware.

By using a powerful router like the ASUS RT-AC86U, you'll find that networking, whether at home or at the office, has ever been so flexible. If you don't already know, the RT-AC86U is an AC router that is capable of transmitting data at speeds of up to 2,167 Mbps. What this number means is that you'll have smooth streaming of your favourite VOD sites and better gaming latency over a wireless connection. Transferring files or streaming videos over wireless also becomes smoother and faster compared to using your ISP's default router.

For the gamers out there, what might attract you is the built-in WTFast, a feature that helps improve latency by optimising the route your data packets take. By taking the shortest path to the server, WTFast not only improves your ping but reduces packet loss as well. But what if there's multiple users on your network while you're gaming? You can setup the Adaptive QoS to put priority on your gaming, so you'll be able to maintain smooth gaming even when everyone else around you is streaming.

Like always, ASUS routers are easy to setup with their web browser UI, where it only takes a few minutes to get your network fully up and running. Also, when it comes to wireless coverage, there's no doubt that the RT-AC86U has great range, easily reaching across our homes and offices, albeit having the same troubles all wireless signals have with walls. But thanks to the use of the AiRadar technology, the router locks on to your device and strengthens the signal by focusing on it so data moves much more linearly to the device.

All the ports you'll need for a home network, and additional USB ports

+ Performance
Easy setup
Great features

— None

CHIP CONCLUDES

The RT-AC86U is solid choice to replace your router that just doesn't seem to cut it anymore. It has all the features and performance you need for a big family or office.

Razer Panthera

Price: RM1,299
Contact: Ban Leong Technologies Sdn Bhd
Phone: (03) 7956 6300
Info: www.razerzone.com

Controls: Sanwa
Joystick: Exchangeable top (Ball/Bat)
Consoles: PlayStation 4, PlayStation 3, PC
Connection: USB

Performance:
Features:
Design:
Value:

By Rikco Shim

Fighting Old School Style

For those who dislikes the regular console controller and want an authentic arcade stick option

Razer is no stranger to peripherals and it is to no one's surprise that they decided to design a new arcade stick for the PlayStation 4. The Razer Panthera is an arcade stick that is designed and made around the PlayStation 4, but it can be used for the PC as well, with a simple driver download from Razer's site. It comes in blue, with Razer's logo and PlayStation 4 button legends etched on the plexiglass of the device.

There are a total of 13 buttons present on the device with three additional sliders, and they can be used to control the console, similar to your regular PS4 controller. The joystick of the device is an Authentic Sanwa joystick ball top, which can be replaced with a bat top that is included in the package as well. If ball top is not your preferred handle, then simply swap it up and you are good to go. The buttons are responsive and tactile and feels just like how an arcade stick should feel. Expanding on the buttons, pressing the Razer logo on the bottom of the device opens up the device, allowing you free reign to customise its internals. You can mod the device in a few ways, namely swapping the buttons and changing the joystick. Sadly for the Panthera, you are unable to change the artwork without removing the plexiglass, so if you are into DIY and want to change up the artwork, you

are out of luck. You can, however, still plaster stickers on top of the plexiglass.

Under the hood, there are plenty of spaces for you to store your belongings, wires and so on, which is perfect for LAN parties or competitions. There is a preallocated space for the bat top or ball top, so you can switch on the fly. The Panthera is quite a hefty device, so the bottom and internal compartment of the device is lined with anti-slip mat to stop the device and the internal components from sliding around.

We tested the device with Tekken 7 and Dead or Alive 5 Last Round on PC after installing the driver and it worked flawlessly, and fighting games on the PC is now a pure bliss to play. To work the controller on your consoles simply just plug in the connector to the device, and then connect it to your console via USB. We also ran some tests on the PlayStation 4, and it worked without any issues as it is designed for the console to begin with.

If you're a huge fan of fighting games and have been debating whether you should be buying a fighting stick, then this will be a great choice for you. It is durable, weighty, has tactile buttons, and you can swap the joystick and buttons. In addition, its sole purpose isn't just to be used to play fighting games, since you can also play other games with it.

The interior of the Panthera

Additional buttons that can be found on top of the device

+ Weighty device
  Doesn't feel cheap

– Non-replaceable artwork

CHIP CONCLUDES

A great option for an arcade stick from Razer, but do note that having an arcade stick does not improve your gaming prowess, it is just an alternative to your regular controller.

Sony Xperia XA2 Ultra

Price: RM1,999
Contact: Sony (Malaysia) Sdn Bhd
Phone: 1 300 88 1233
Info: www.sony.com.my

Display: 6-inch Full HD
System on Chip: Snapdragon 630
Connectivity: WiFi Miracast, Bluetooth 5.0, Google Cast, NFC, USB Type-C
Memory: 4GB RAM
Storage: 64GB internal storage + 256GB microSD
Operating System: Android Oreo
Camera: 23-megapixel (Rear), 16-megapixel + 8-megapixel (Front)
Dimensions: 163 x 80 x 9.5 mm
Weight: 221g

Antutu: 71,695 points
PCMark for Android: 4,870 points
3DMark Sling Shot Extreme: 825 points
3DMark Sling Shot: 1,353 points

Performance:
Features:
Design:
Value:

Ultra-fied Experience

By Rikco Shim

Sony's newest take on the smartphone for great pictures, now equipped with a fingerprint sensor for fast unlock

The XA2 Ultra is one of Sony's latest smartphone to come out from CES2018 and we managed to get an early review. Sony decided to keep the same curved metal design and maintained the huge chin for the top and bottom of the XA2 Ultra. With it being a fully metal body design, it is nice to hold, but is on the slippery side, so make sure you have a good grip on the device! Also, Sony switched it up and placed the rear camera and the fingerprint sensor in the middle of the device, offering easy device unlock. The usual buttons can be found on the side of the device, and Sony continued with the trend of having a dedicated shutter button on the device for all your capture needs.

Speaking of cameras, the XA2 Ultra is equipped with a beefy 23-megapixel f/2.0 rear camera, so your pictures will look crisp and clear. With the help of the shutter button, you can also easily snap away while holding the phone with two hands. Of course, the ability to capture great selfies is important to many as well. Thus, Sony gave the XA2 Ultra a dual front camera setup of 16-megapixel + 8-megapixel, with the 16-megapixel front shooter equipped with Optical Image Stabiliser to keep images clear and reduce shaky footage.

The device is zippy, especially considering it's only using a Qualcomm Snapdragon 630 processor and 4GB of RAM. It can't compete with other devices that are pricier, but you can still game, perform your social media tasks and so on with no issues. With the 3,580 mAh battery, it can last you a whole day if you space out your usage. And with USB-C, you can Quick Charge your device, granting you hours of usage with just minutes of charge.

When it comes to audio as well, it is equipped with a myriad of technology and software that will offer you a rich sound experience. Overall as a mid-range phone, it does what it set out to do, well and in some cases, better than its counterparts.

The easily accessible shutter button

AR effects for you to fiddle around with in the camera app

+ Capable of taking great pictures
Massive 6-inch display

— Dated design

CHIP CONCLUDES
Overall, a great entry from Sony that keeps the other competitors on their toes, but still lacks the extra pizzazz that other devices provide.

AverMedia ExtremeCap UVC

Price: RM1,298.50
Contact: AD One Technology (KL) Sdn Bhd
Phone: (03) 7987 4310
Info: www.ad-one.com.my

Interface: USB 3.0
Input: HDMI
Output: USB 3.0 Type-C
Output Format: MJPEG, YUY2
Resolutions: Up to 1920 x 1080
Dimensions: 85 x 43 x 17 mm
Weight: 82g

Performance:
Features:
Design:
Value:

Easy Streaming

By Rikco Shim

One of AVerMedia's lightweight streaming kit for those who wants to stream their portable devices

The AVerMedia ExtremeCap UVC is a portable video capture device that can be brought with you anywhere you go. It is lightweight and easy to carry – even smaller compared to a power bank. The device is made of metal and if you wish to stream games on your mobile device, it is advised that you either cover or wrap the device, as the edges of the device are quite sharp and unfortunately will scratch your precious smartphone and so on. It also comes with an LED strip that's useful for troubleshooting. When you are not streaming but it's plugged in, the LED will glow solid red, and when you are it glows solid blue.

The device comes with only two ports: HDMI and USB Type-C. You plug in the HDMI part into your intended device, and connect the USB one to your PC or laptop. However, as there are only two ports on the device itself, there are no HDMI pass-through for you to plug in another device to monitor.

We tested it with a Nintendo Switch by plugging the HDMI to the HDMI on your Switch dock, and plugging in the USB to a PC. Using OBS as our streaming software, and the configuration only took us a few minutes as OBS is pretty user friendly. You have to set your video and audio settings to go through the device, otherwise you will end up with no video or audio in your stream. There's also AverMedia's own RECentral software, which also works well.

As mentioned, there are no HDMI pass-through, so the only way to play your game is via the streaming software itself. However, utilising a HDMI splitter could solve this issue. Sadly, on the Switch, some lag is present for the audio and button input, so you need to be wary when you are playing fast paced games like ARMS or Splatoon 2. We played a few games with this setup and fortunately, FPS remained stable throughout our gameplay and only dropped a few times when we were playing Zelda. The audio was about half a second slower on stream, though the button inputs were only a fraction late. But even so, button registration is extremely crucial for fast paced games, so it will be an issue.

If you just wish to stream on your smartphone, you won't need a pass-through, as it does its job without any issues. You can also use it to stream with other HDMI-compatible devices like video camcorders. Overall, a great device that allows for easy streaming on your portable devices, but if you want to stream something other than a camera or a smartphone, you will be better off getting something else with more pass-throughs.

The LED Strip allows you to see whether your device is well connected or having issues

Not a massive device, can be slotted into your pocket even

+ Lightweight
Easy to stream, just plug and go

− Sharp edges
Lack of outputs

CHIP CONCLUDES

A great capture device that allows you to stream easily, especially when you are on-the-go, but for gaming handhelds or consoles, will prove to be an uphill battle with the lag.

D-Link DCS-8000LH

Price: RM189
Contact: Advancenet Technology Sdn. Bhd., Ingram Micro Sdn. Bhd., Lab Seven (M) Sdn Bhd
Phone: (03) 8070 3633, (03) 7952 8188, (03) 80758811
Info: www.dlink.com.my

Ports: None
WiFi: Yes
Encryption: WPA/WPA2
Range: 120°
Camera: 1-megapixel progressive CMOS sensor
Microphone: Yes
Dimensions: 38 x 35 x 92 mm
Weight: 58g

Performance:
Features:
Design:
Value:

By Matthew Yap

Tiny Surveillance

A camera that keeps an eye on your home is great, better yet if it's cheap and can quickly send alerts to you

Our friends from D-Link has been pretty consistent in sending us items for review, with the brand mostly focusing on IP cameras lately. Although there aren't many who see the need to have one of these, an IP camera is great if you have that paranoid streak and want to keep an eye on your safe at home. Say hello to the D-Link DCS-8000LH, one of the tiniest IP camera we've tested so far.

Dubbed the Mini HD Wi-Fi Camera, the DCS-8000LH is an IP camera that operates exclusively via Wi-Fi. In fact, D-Link only packed the camera, power adapter, and a few documents in the box with it. It should also be noted that the cable for the power adapter is only about 1-metre, so it can't be too far away from a power outlet.

The DCS-8000LH is small and tube-like in design, with a completely white body that could blend into equally white walls. It comes with a 720p camera, an infrared LED sensor, built-in microphone, light sensor, and status LEDs on the front, while the micro USB port that acts as the power input is at the back. There's no particular covering or housing, which means it's meant to be used indoors, or at least in sheltered spots.

In addition, this camera can't be mounted anywhere you like. This is because it doesn't come with a mounting option, unlike some of its larger cousins. Since it can only show a static view, its primary use is to monitor a fixed location that is important to the user. Of course, you can jury-rig some way to mount or stick it to a wall, but we don't recommend it.

One big gripe we had with the camera is the long setup and loading time. The camera itself probably only has a very weak CPU and it took more than 10 minutes for us to complete the initial setup. Trying to access the camera over the internet using the mydlink Lite app is also slow, as it takes a few seconds to load. This can be a problem if you're loading in after getting an alert, because you might miss what happened during the load time.

Slow performance aside, there's no denying that it has a lot of features for an IP surveillance camera of this size. Sure, it only shows a static 120° angle of view, but it can see in the dark (up to 5 metres), detect movement and sound, as well as take screenshots and record videos. This means that as long as it's placed strategically, its lack of movement and slow loading won't be as critical of an issue.

Seeing in the dark is no problem with the infrared sensor above the lens and microphone.
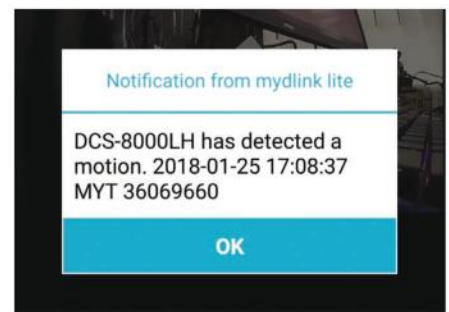
The camera will send you alerts when it detects sound or movement.

+ Lots of features

— Slow load times

CHIP CONCLUDES

For something so small, it has quite a number of features crammed into its small body. Definitely an option to consider if you're looking for an affordable IP camera.

The Tabletop Report

Tear your eyes away from the screen for a moment and let your imagination be set free. Welcome to the world of Tabletop By Nixon Ng
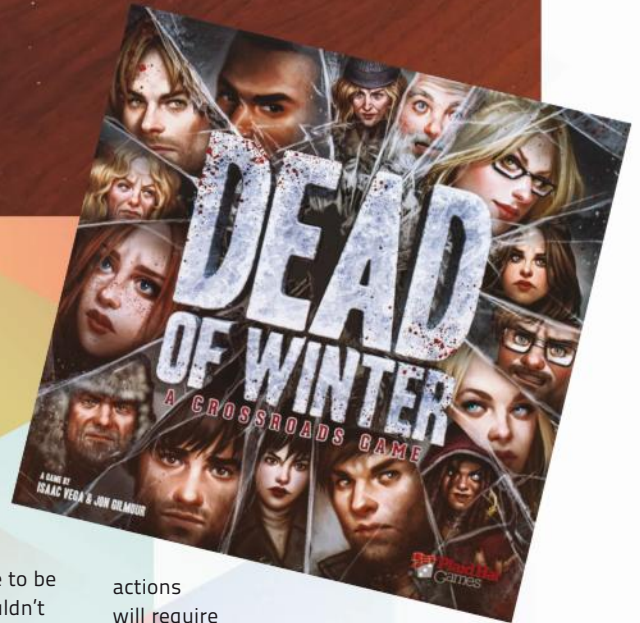
Dead of Winter: A Crossroads Game

Dead of Winter is a meta-cooperative psychological survival game that puts 2-5 players into a small and weakened colony of survivors. Most of the world is either dead or have turned into flesh-eating zombies that continue to spread with each new bite. Players take control of survivors during the game, each with their own special ability and stats, which can either aid or cause further strife to the colony. At the beginning of the game each player is distributed "Secret" cards that give players an additional objective to complete, on top of the main objective chosen.

To win the game, you have to complete both the main objective as well as your "Secret" objective, so don't lose track of

your "Secret" or you might just end the game before fulfilling its conditions. The "Secret" card also adds a twist, because there are also Traitor cards that pit the players against others. Traitors have to be sneaky with their objective and shouldn't allow other players to catch on to their scheme lest they want to be exiled from the colony. The game is played in two phases, the Player Turns Phase and the Colony Phase.

At the beginning of each Player Turns Phase, each player rolls the number of action dice that equal the number of survivors they currently have, then add an additional die for himself/herself. Certain

actions will require you to use an action die and may ask you to use one that has a certain value or higher. As said before, different survivors will have different stats and some survivors require higher or lower numbers on their action die to perform searches or attacks. Survivors to pay attention to is the Group Leader you have chosen, who will be the first survivor you control on the board, and any further

Contribute to the impending crisis or you may very well lose the game

COLLAPSING BARRIERS

If a survivor the player controls is at the colony and there is at least 1 barricade and 1 zombie at the colony: "We've got a problem. They're piling up on the barricades. I've seen it – they're just a wall of meat, teeth and claws. There's no way the barricades can hold up under that kind of weight. It's all makeshift anyway. I'm afraid we don't have a choice – we need to send in a team to clear them out." Every player with 1 or more survivors at the colony must vote with a thumbs up or down. The option with the most votes takes effect.

THUMBS UP OPTION

Each player that controls 1 or more survivors at the colony chooses a survivor they control at the colony and rolls for exposure on that survivor.

THUMBS DOWN OPTION

Remove all barricades from the colony.

You have activated my trap card! Crossroad cards add an element of unpredictability, ready to penalise or reward players

survivors you find during search attempts.

Starting from the "First Player", each player chooses the actions they want, only limited by their action die. Once the player is done with their turn, it moves to the next player and this repeats until it reaches the last player. During your turn, there are plenty of actions you can take but the two most important actions are the "Search" action and "Attack" action. Not to mention the "Move" action as well. To first search for items or other necessities, a player has to "Move" their survivor out of the colony and into a non-colony location. When this is done, the player has to roll the "Exposure Die" and follow the effects rolled. Penalties can range from taking damage to being killed instantly and spreading the virus further.

But if all is well, a player can "Search" using a suitable action die once in a non-colony location. Next, the player draws from the deck where they are currently on. A player may also make "Noise" to draw an additional card. Noise tokens are placed on the location and are resolved later during the next Phase. Next the player may also attack a zombie and kill it, but after killing a zombie you have to roll the "Exposure Die" again. Once every player has taken their turn the Colony Phase comes into play. No player can take action during the Colony Phase, which is designed mostly for resolving different effects in preparation of the next Player Turn Phase.

First, food must be paid for survivors still inside the colony, then certain effects are resolved before having zombies spawn on the board. Each Noise token gives a chance to spawn additional zombies on top of the zombies already being spawned. The game follows this turn rotation until either the mission fails or is successful upon checking at the appointed step. But not everything can be easy for the survivors, for like real life there is randomness and unpredictability. "Crossroad" cards add an element of unpredictability to the game and are always drawn by the player on the right of the current person taking their turn. The card is then kept a secret and is only read out once it triggers, which may lead to either benefits or penalties.

The second obstacle in the game are "Crisis" that are revealed at the beginning of each Player Turn Phase. Players may contribute cards that are found during searches and are highly recommended to do so, as Crisis cards usually have devastating penalties. With so many factors getting in the way of the survivors, the game is not just fun but also challenging, while offering great replayability.

Always be aware of your surroundings, or you might be overrun by zombies before you know it

THE LEGEND OF
ZELDA
Breath of the WILD

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A Breath Of Fresh Air

Taking you on an expansive journey with a captivating story through Hyrule By Rikco Shim

The Zelda series has never failed to innovate with each iteration, and Zelda: Breath of the Wild is no different. It improves on several aspects of a worn out, exhausting open-world genre, while maintaining the Zelda charm. You play as Link, in a journey to find out what had happened while you were in slumber for x years. The Kingdom of Hyrule is in peril and ruins, so it is up to you to find out what happened to the kingdom and try to restore peace to Hyrule.

The game is beautiful from the get-go, from areas lush with greenery, to scorching desolate deserts. For a game that kickstarted the era of Switch, it is a beauty to behold. As mentioned, the game is open world and one of the reasons BotW shines is its ability to explore. Usually with open world games, you can traverse the map in a few ways, walking, flying, driving and so on. For this game, you get to climb almost anywhere. If you see a mountain in your view from far away, chances are you can scale that mountain. This change in movement greatly gives the game a fresh new take vertically. However, Link has a stamina wheel, which depletes whenever you climb, swim, sprint and so on.

You can climb up the highest mountain just by constantly eating food that increases or restores stamina.

Cooking and food also plays an important role in the game to boost your stats. For example, when you are heading to the frozen mountains, it is a good idea to cook some cold resistance potions or food. If you do explore the frozen areas without any cold resistance items, Link will perish easily.

You can find various weapons such as spears, boomerangs and magical rods throughout the game and use them to your advantage. However, a drawback they added

Hunt for food to sate your hunger with, and cook a variety of dishes

to this game is that your weapons degrade with use, forcing you to constantly scrounge and save up strong weapons for boss fights. Luckily, the master sword does not degrade, but it does run out of charge and can't be used again until it's charged.

In this game, you obtain runes on your Sheikah Slate, which are used to navigate through puzzles and quests. Runes in this game replaces items used in older games such as bombs and so on. With this, players were able to concoct up several different ways to solve puzzles. For example, by slotting an iron box into a minecart, and using the Magnesis Rune, you can fly indefinitely.

Overall, The Legend of Zelda: Breath of the Wild is an amazing RPG that every Nintendo Switch and Nintendo WiiU owner should play, especially if you like RPGs. It offers players a captivating story, great gameplay, and amazing soundtrack, while staying true and adding to the Zelda lore. While it's definitely not a game that Zelda fans should skip, some may be turned away because of the open-world style of gameplay and the addition of weapon durability.
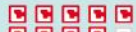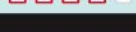
Scaling a tower on top of a bridge, but do note your stamina wheel, or you will fall to your demise

The Legend of Zelda: Breath of the Wild

Genre: Open World RPG
Developer: Nintendo
Info: https://www.zelda.com/breath-of-the-wild/
System Requirements Platform: Nintendo Switch, Nintendo WiiU

| + | Soundtrack Captivating Story Interesting Characters Almost everything can be climbed on | − | Weapon durability |

Gameplay:
Sound:
Replayability:

E-Sports Express

Latest E-sports updates from the region and around the world By Matthew Yap, Nixon Ng & Rikco Shim

Galaxy Battles, not as planned

After Valve rescinded the Major status of Galaxy Battles II, there were concerns of whether the event would still proceed. While certainly not what Fallout Gaming had in mind, the event did proceed with VGJ.Thunder sweeping off Evil Geniuses 3:0 in the grand finals, avenging their 2:0 loss in the third round of the upper bracket. For their efforts, VGJ.Thunder won a hefty USD 200,000 (approx. RM775,380) in grand prize money.

TNC bids 1437 goodbye

Following a string of subpar results, TNC decided to drop Theeban Siva "1437" from its roster. This came right after the team failed to proceed to the finals of the ESL One Genting. Both Team TNC and 1437 will need to find a new member and a team, respectively, if they want to make it for the final roster lock on the 5th February 2018.

Shadowverse Open 2018 includes SEA and Oceanic

This year, Cygames is making the Shadowverse Open to players from SEAO (South East Asia and Oceanic) as well. By signing up to the tournament at battlefy.com/shadowverse-open, participating players can get an exclusive Shadowverse Open: Chronogenesis emblem and a maximum of 30,000 vials. Unfortunately, players from SEAO won't get to play in the special regional finals – featuring USD 16,000 (approx. RM62,030) prize money per region – that North America and Europe will have.

AirAsia sponsors DotA 2 team

AirAsia has taken its first step into the world of e-Sports and has become the special sponsor and exclusive airline partner of the Mineski DotA 2 Pro Team. The team which consists of Mushi, NaNa, iceiceice, Jabz and ninjaboogie was announced to have gotten their one-year sponsorship during ESL One Getting 2018.

Mobile Legends Professional League enters regular season

Qualifying rounds for the Mobile Legends Professional League (MPL) have finally passed and the regular season has begun. The first half of the regular season has already begun with the second half happening from 23 February 2018 to 11 March 2018. All 10 teams will face each other, totalling 45 matches where each match consist of two games, and each game win will land them 1 point. Teams will receive USD250 (approx. RM972) per game they win, and all 45 matches will be streamed live on eGG Network's Facebook Page, so do tune in.

Cloud9 signs Laser Kittenz

Laser Kittenz's roster has been picked up by Cloud9, just before the opening of Overwatch Contendors Season One. Catching Cloud9's eye during Season Zero with a 5-1 record and being able to join the semifinals, CEO of Cloud9 Jack Etienne was proud to announce

their acquisition of the team, and commits to devote their time and talent to reach their ambitions in Season One of Contenders.

eGG Network and Fox Sports presents Virtuelle Bundesliga SEA Qualifier

eGG Network and FOX Sports Asia are calling for the top FIFA 18 players in the region to compete in the Virtuelle Bundesliga South East Asia Qualifier. The champion will get the chance of a lifetime to represent South East Asia to compete with the world's best FIFA 18 players at the finals in Germany. The qualifiers will be held at Battle Arena, Petaling Jaya, Malaysia on 10 - 11 February 2018.

E-SPORTS NEWS

Presenting you the winners of Asia Pacific Predator League 2018

Geek Fam, a beloved team hailing from Malaysia was recently crowned the champion of Asia Pacific Predator League 2018. The tournament was held over the span of three months, and it showcased the gaming prowess and skills from each member of Geek Fam. Held from October 2017, the tournament was attended by 1,197 esports team all over the world from various countries.

Geek Fam is made up of Skemberlu, Mark, ChYuan, Oli and Playhard. They were victorious against BOOM.ID from Indonesia, squeezing out a 2-1 victory, while Quid Pro Quo from the Philippines stands in third place.

Andrew Hou, the President of Acer Pan Asia Pacific said: "It is with great pleasure and gratitude that we have been able to successfully hold the Asia Pacific Predator League, our world-class biggest esports tournament here in Jakarta. Congratulations to Geek Fam from Malaysia for coming out on top of the first-ever Asia Pacific Predator League. In 2019, we will extend the tournament's reach to 14 APAC countries, and the grand final of Predator League 2019 will be in Bangkok, Thailand!"

With their heads held high, we hope that Geek Fam will do Malaysia proud and keep fighting the good fight in the esports scene.

Lenovo's Legion of Champions Series II

Near the end of January, Lenovo's Legion of Champions Series II kicked off in Bangkok, Thailand. This tournament was previously known as League of Champions. The event spanned over three days, and Lenovo, collaborated with Intel to bring over 60 gaming talents from all over Asia Pacific. Debuting last year, this year's tournament brought teams from Hong Kong, Taiwan, Indonesia, Malaysia, Singapore, Thailand and so on to duke it out. The winner walks away with a cash prize of 210,000 THB (approx. RM26,000), while the runner up will score themselves a hefty 110,000 THB (approx. RM13,600).

During the qualifies, Lenovo Legion gaming devices were used to compete, offering the players top-of-the-line gaming experience through a combination of speed, performance and consistency. The Legion of Champions Series II is one of Lenovo's major efforts in nurturing the next-generation of gamers in the consistently growing community all over Asia. This allows professionals and even amateurs to challenge themselves and vie for the title.

Ivan Cheung, the Executive Director and Regional General Manager of Lenovo Asia Pacific, had this to say: "Asia is at the centre of the rise of esports. While esports is a key driver of PC gaming growth in the region, it is more than that. It has brought disruption to the technology industry and beyond by inventing new meanings to gaming. Increasingly, esports is recognised as a professional sport, just like basketball and football. As such, Lenovo has hosted Legion of Champions II, providing a battlefield for top players to shine, as well as letting more gaming enthusiasts be part of a growingly influential community."

大年初一
2018

杨祐宁
李宇春
井柏然
梁朝伟
白百何

许诚毅作品
捉妖记 2

Monster Hunt 2

IN CINEMAS
16 FEB 2018

EXCLUSIVELY FOR ALL READERS OF CHIP

To WIN, simply answer the questions below!

Which cast do you love watching in this animation fantasy movie?

_____

Send your entries to:
Online Dynamics (M) Sdn Bhd/ _'Monster Hunt 2'_ Contest
A-5-07, Block A, Neo Damansara, Bandar Damansara Perdana, Jalan PJU 8/1, 47820 Petaling Jaya, Selangor Darul Ehsan.

Rules and Regulations:
Sony Pictures reserves the rights to replace all prizes without prior notice. Winners will be notified by mail or phone. Closing Date: 10 March 2018

Gaming Apps Of The Month

These are the apps that we have currently installed on our mobile devices. We think they should be on yours too By Rikco Shim

The Last Step
(Android – Free, iOS – RM 0.90)

The Last Step is a challenging rogue-like dungeon crawler game that is extremely difficult to beat. In our first few runs, we kept dying to a random mob that killed our team in three turns. Similar to other dungeon crawlers, you and your team just go through the process of exploring, fighting, and navigating to other levels.

Once you start up the game, you start with three characters, a knight, thief and a shaman. As you expected, the knight has more HP than the thief but deals less damage, while the thief is the one that deals most of the damage, and the shaman is a mixed bag. There are a few more characters available for you to purchase, but would require real money to unlock.

There are plenty of bars in this game – HP bar, MP bar, Hunger bar and so on, and all of them are treated and filled in different ways. You gain HP when you rest, MP with every turn in battle, and Hunger by eating. When you explore, you lose hunger and when your hunger drops down to 0, your characters will take damage the more you explore. And when your HP is 0, it is game over for you.
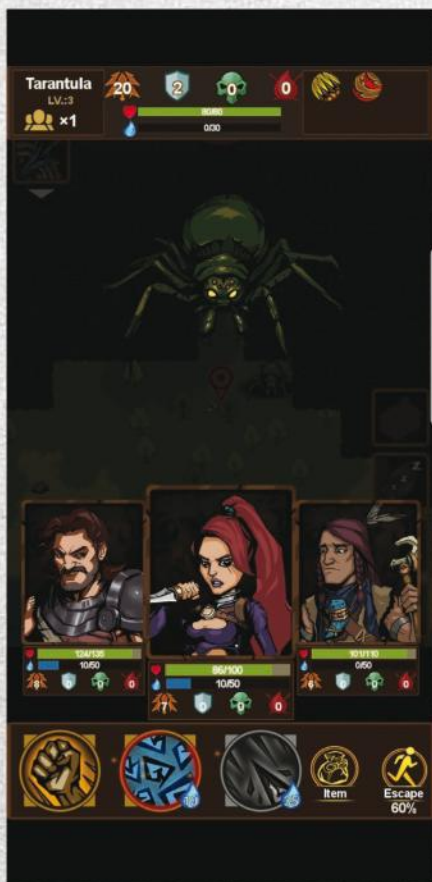
Fighting against a Level 3 Tarantula with your three characters, and at the bottom, the three skills that they can use
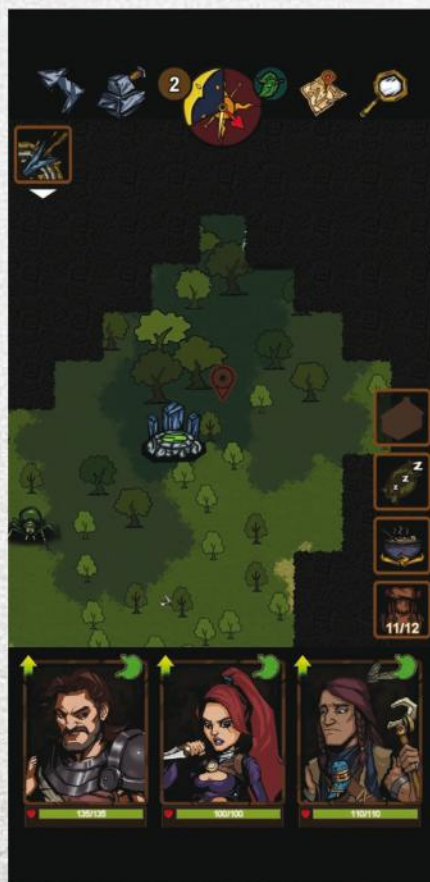
When exploring, note that the unexplored areas are blacked out. The Day and Night cycle can be seen on the top, and characters' status at the bottom

Exploring in the game is square-based, with your movement confined into squares, and you can only move one space at a time. Battles are turn-based, with your characters moving first before the enemies. Most enemies are tough and require you to plan ahead or be well-equipped to tackle. Sometimes you can meet a high level enemy that will absolutely decimate your team with a single move. At the same time, you have to make sure that your team is well fed and rested for the next fight.

The game is challenging when you are fighting against multiple elements of nature. You have the Day/Night cycle hampering your vision, terrain affecting your movement, and luck also plays an important part in the game. It is a gruelling game, but with practice and multiple replays, you might just be able to reach the end.

Good Pizza, Great Pizza
(Android, iOS – FREE)

Ever thought of running your very own pizzeria and design your own pizza? Now you can with "Good Pizza, Great Pizza". In this game, you play as a fresh new restaurateur, making waves with your pizza. Right off the bat, you are greeted with a rival pizzeria located right opposite your own. Almost like the hit animated show Bob's Burgers, where Bob's rival – Jimmy Pesto, owns a restaurant right across the street – will constantly drop by his restaurant to annoy and bug him, your rival will do the same as well, taunting you and trying to one up you every chance he gets. But don't worry, karma will always be paid back in full!

Anyway, graphics first. The game is beautiful with its hand-drawn graphics, with cute and expressive characters. Even the pizza that you can make look mouth-watering good as well. For a mobile game, it does the job well without requiring you to have the latest smartphone to play it. Audio is decent as well and the music is whimsical, giving the game a good atmosphere. However, the music does hiccup and fails to loop smoothly. Voices are just a series of grunts and noises, as most 'talking' is done via text, so don't worry if you are someone that plays games without the audio on.

Speaking of talking, customers in this game are sometimes infuriating with their orders. Some of them will order their pizza with riddles, making you jump through hoops just to get their orders right. Luckily there is a button for you to press to prompt them to give you a straight answer, but it does reduce their satisfaction meter. Satisfaction meter drains over time and the higher it is, the more tips you get aside, in addition to the price they pay for the pizza.

Money in this game allows you to upgrade your pizza tools, buy more pizza toppings, decorate your pizzeria and so on. It is satisfying to save up money after a few days and finally purchase a faster oven to help speed up your pizza making process.

Overall, the game is easy to pick up. It's fun to play, doesn't really force you to speed through everything, and is challenging thanks to customers orders. It is a great game to play on a bigger screen though, to be able to create your perfect pizza, while sipping on a cup of coffee.

A customer with a cryptic order

Creating a half & half pizza for a customer

Made Possible By The Masses

Our monthly look at crowd-funded projects that caught our eyes

By Matthew Yap and Nixon Ng

FITT360

For those who like the concept of the 360° camera, some may have lamented that those cameras tend to not be as portable as they'd like. Well, with the FITT360, you'll have a 360° camera that will move along with you. This wearable neckband camera provides you with a hands-free way to capture your surroundings in true 360° first person view, which is great for people who like to record their vacations.

http://kck.st/2BtpsEY

Mycroft Mark II

The Google Home and Amazon Alexa might be the big names, but they're not open source like the Mycroft Mark II. This smart speaker can help you retrieve the weather report, change your music tracks, or set reminders for you. Those are all standard, but what makes Mycroft different is that the company has assured that your data is kept private, so it won't be mined and used to sell you ads or products.

http://kck.st/2Fhk7Tk

PITTA

The world is not tired of drones yet, because there's still much to innovate. Strictly speaking, the innovative PITTA is an action camera and drone in one. It can be mounted to a handheld gimbal, or other action camera compatible accessories, or transform into a drone so it can capture aerial pictures or videos. Despite being small and light, it's actually capable of 4K recording at 30FPS.

http://kck.st/2n9003i

BEAK

Take control of every connected device in your home and throw away all your remotes, BEAK will become your very own universal remote. The BEAK interface is designed to be simple and easy to pick up, connecting with all sorts of smart devices, so that you can run your home in a centralised way from any mobile device or computer. BEAK redefines the concept of intelligent living with its tremendous adaptability and potential to seamlessly integrate with an array of devices.
http://bit.ly/2DLsfza
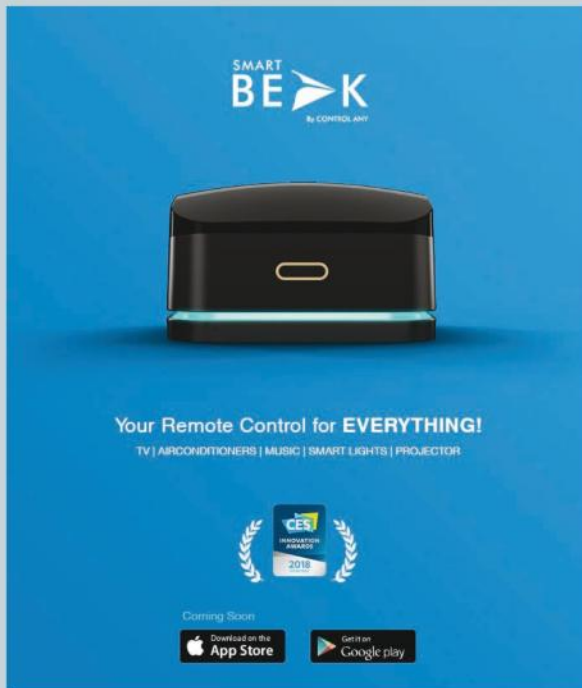
LightCam

LightCam is a controllable smart light bulb paired with a full adjustable Full HD security camera that lets you see anywhere you have a standard light socket and Wi-Fi. Each LightCam comes with a unique QR code that when scanned will associate the device with your LightCam account. That means whenever LightCam tries to connect to a Wi-Fi you'll get a notification through the app. There's even a built-in speaker and microphone in the LightCam to give your friends and family a scare.
http://bit.ly/2rPg92u

Belle

Meet Belle, the world's first intelligent Wi-Fi doorbell that greets your visitors on your behalf and notifies you when you're needed. As a doorbell with brains, Belle is capable of recognising different types of visitors and handles them smartly for you. The motion alert feature keeps you informed promptly when something gets near to your door, which also means the Belle can function as a pseudo surveillance device. Additionally, Belle is designed to be compatible with Alexa so you'll be able to control it by voice.
http://kck.st/2rLgu6a

Back Issues

Missed a few month's worth of CHIP? Or have a particular issue that you would really like to have? We might not have a time machine to send you back, but we'll definitely be able to get you a copy of our magazine of time's past.

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Access Your Home Network Securely

Do you wish to access your home network and your NAS from an open wireless netowork, without being spied upon? A VPN connection is the perfect solution for this   By Arthur Hoffman

There are always situations where users need to access their home network and their NAS while travelling. To minimise the risk of eavesdropping in unencrypted wireless networks, it is recommended to set up a virtual private network (VPN). The benefit of a VPN connection against a Dyn-DNS solution is that you will have a direct connection to your entire home network - as if you were sitting at home in your living room. In this article, we will show you how to set up the VPN function on a Synology-NAS and how to configure the devices.

1 Establish VPN connection with Synology NAS

The most important prerequisites are that the latest version of the NAS operating system Disk Station Manager (DSM) is installed on your Synology NAS and that remote access has already been configured. If yes, then install the component "VPN Server", to be found in the "Service Program", via the package centre and open it. You can now select among three connection variants. Since "PPTP" is considered as insecure and "OpenVPN" is not adequately supported by mobile end devices, click on "L2TP/IPSec" on the left under "Settings" and activate it. You do not need to change the

pre-entered information like the "Dynamic IP-address", which is assigned to the connected devices via VPN. Now, type a secure password for "Pre-installed Key" and repeat it for "Confirm preinstalled Key". Save the changes by clicking on "Accept" and acknowledge the message that alerts you about the forwarding of the UDP ports 500, 1701 and 4500, by clicking on OK.

Important: If you are using the built-in NAS firewall, then you have to open the ports in question. You should also click on "Privilege" in the "VPN Server" dialog and remove the rights for all users who may not access the VPN. To save this task in future, click on "General Settings" in the left column and remove the check mark for "Grant VPN authorisation for newly added local users". You can check the users who have access via VPN, by checking the "Log".

NAS systems from Asustor and Qnap also support access via VPN and the setup is similar. First, install the respective app (Asustor: "VPN Server", Qnap: "QVPN Service"), select VPN type and provide the required info.

2 Set up port forwarding on router

The router must know what the network clients are, so that it can forward the data packets coming from the Internet to the correct end devices. To do this, you have to configure the port forwarding on your router. You can do this via the router configuration screen. Look for the "Port Forwarding" function on your router (UI differs from router to router), then select your NAS. Make sure to select "UDP" for the protocol and type "500" for the device's port. Next, forward the UDP ports 1701 and 4500 in the same manner. Save your settings by clicking on OK.

3 Establish VPN connection with Windows 10

Once you have done the preliminary work, you can check whether everything is working fine. Ideally, the first VPN access takes place from a local computer. This gives you access to your router as well as to your NAS in case of problems, so you can swiftly make changes if need be. The setup under Windows 10 is easy. In the "Settings", select "Network and Internet | VPN", click on "Add VPN connection" and enter the required information. Select "Windows (integrated)" as "VPN provider", you can select a random connection name, for example, "VPN NAS". For the "Server name or IP address", enter the DynDNS address of your synology NAS, select "Automatic" as "VPN type". Subsequently, confirm with "Save", click on the VPN icon and select "Connect". In the "Login" dialog, enter the access data that you will use to log in to your NAS and then click on the OK button. The connection will be established in a few seconds as Windows 10 and the NAS negotiates the VPN type. You can then access all the resources released in your network and also the configuration screen of your Synology NAS.

4 Set up VPN connection with mobile devices

The VPN access to your NAS also works via mobile devices. However, the setup is somewhat more elaborate than under Windows 10. Depending on the Android or iOS version, the instructions may differ a bit.

Android: Open "Settings", tap on "More Settings | VPN" under "Network connections" and add a new connection with "+". Next, select the option "L2TP/IPSec PSK" for "Type", enter the "Server
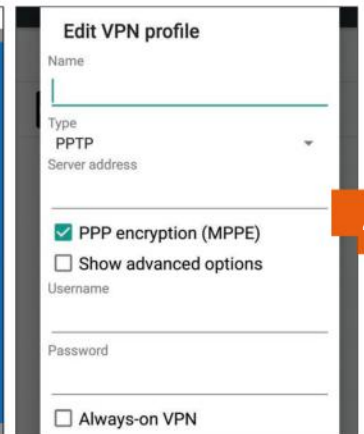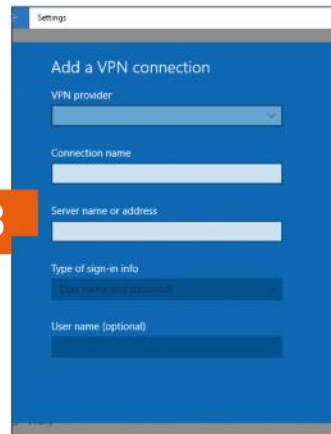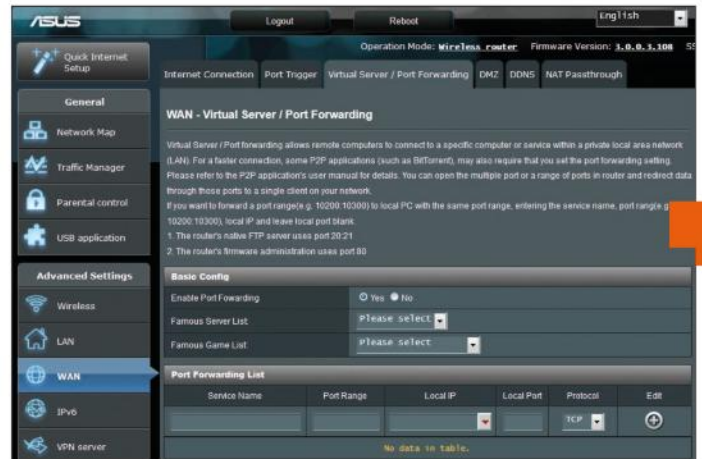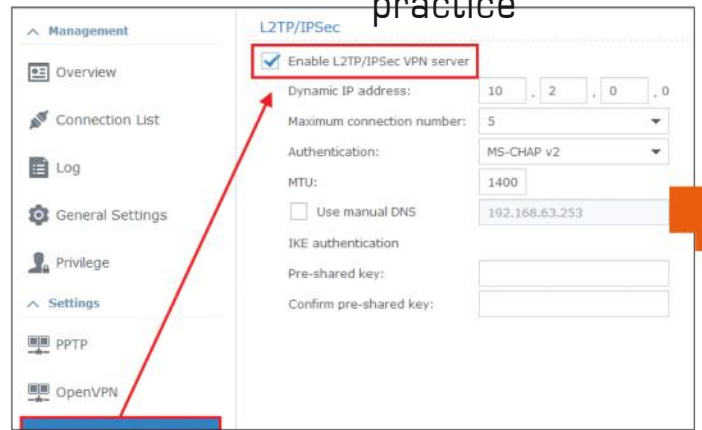
address" (the DynDNS address of your NAS and the "IPsec Pre-shared Key" (the "Preinstalled key" defined in step 1) and tap on "Save". Finally, tap on the new connection, enter the user name and password, activate "Save account information" and finally tap on "Connect".

iOS: Tap on "Settings | General | VPN | Add VPN" and select "L2TP" as "Type". Then, enter a "Description", enter the DynDNS address of your NAS in "Server" and enter the "Preinstalled key" defined in step 1 in "Shared Secret". Next, key in your access information in "Account" and "Password". Finally, tap on "Done" on the top right, return to the previous dialog and set the switch under "VPN Configuration" to "On" to establish the connection.

Undistorted Panorama Shots

Using the technology of the American photo artist Larry Yust, you can shoot thrilling panorama photos without perspective distortions   *By Fabian Vogl*

Panorama photography is becoming increasingly popular. This is because it is getting easier to manage it with the latest smartphones and cameras. But if you have ever shot a panorama photo, then you must have realised that you are confronted with crumpled lines that form optical distortion. Optical distortion can be rectified with a photo editing program, though this will only fix perspective distortions and not geometrical ones.

In order to solve this problem, the American photographer Larry Yust has developed a technology by which you can shoot distortion-free panoramas. The trick lies in moving along the motif while shooting individual photos at a constant distance and shooting overlapping photos while doing so. You can then merge them later on the computer. The final result has only one perspective, in contrast to a panorama photo where one pivots the camera. It is extremely

exciting for the viewer and offers a completely new and thrilling view of the world. In this practice article, you will learn how to achieve distortion-free panoramas in the style of Larry Yust.

1 Select photo location
For starters, a well-accessible, clear motif is recommended as you have to move along step-by-step during the photo session. The larger the motif, the greater number of photos will be required and even the manual merging of the photos will be more complicated.

2 Set the camera
As far as possible, select a low ISO and a shutter speed that will ensure shake-free photos. To avoid problems during the photo montage, it is very important that exposure time, ISO and white
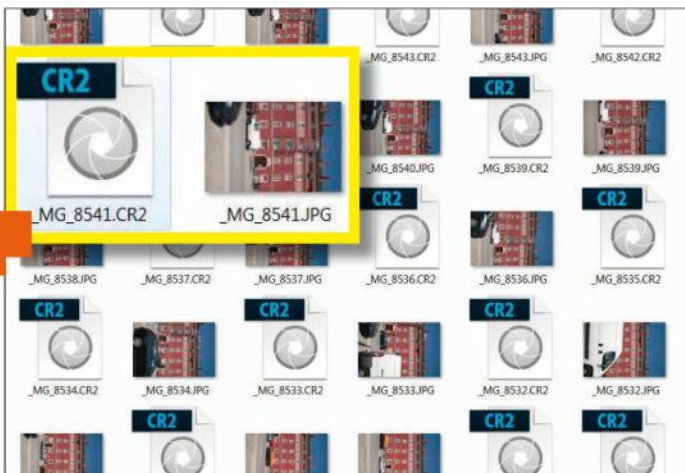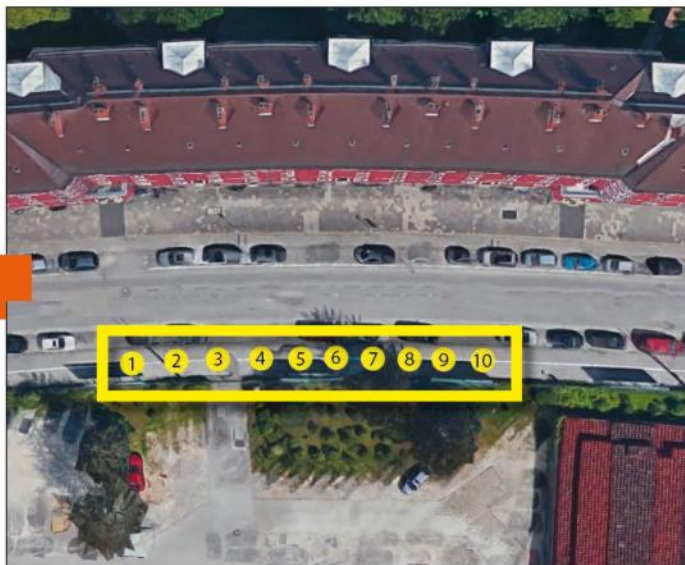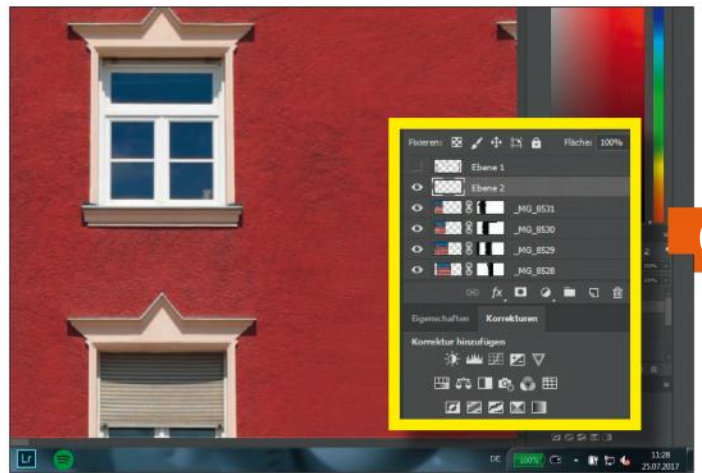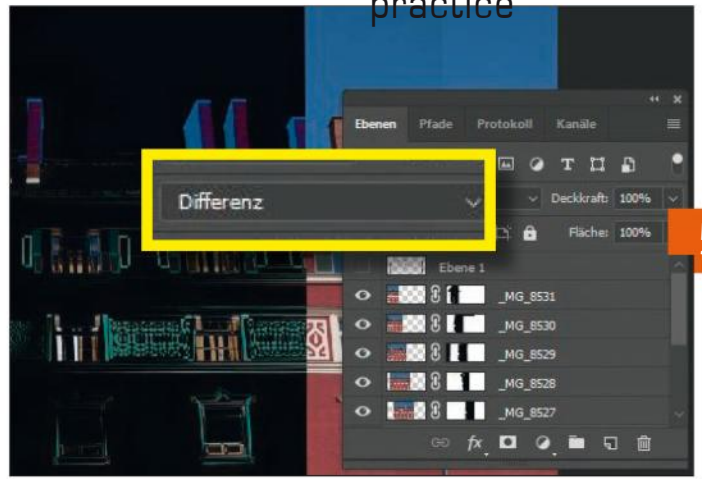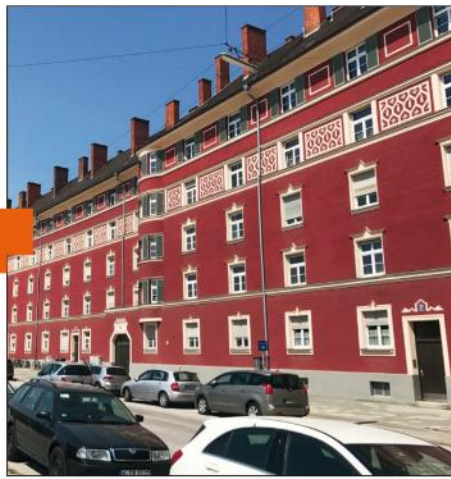
balance remain unchanged.

3 Start photo session

Use a tripod for the photos. To avoid blur, use a self-trigger or a remote trigger. In our project, which is the front portion of a house on Welfenstraße in Munich, we took a photo every three metres so that we have enough material for the montage on the PC.

4 Avoid distortions

The number of photos needed depends on the complexity of the motif. Be sure to take a picture at the height of every vertical column as distortions are prone to occur there. In our example, this implied shooting one photo for every vertical row of windows.

5 Merging the photos into a panorama

Load all photos in Photoshop and overlap the photos so that the total panorama develops in the width. You can place the photos exactly over one another by selecting the "Difference" mode. Subsequently, merge the photos with the help of masks.

5 Optimise panorama photo

Finally, you can stamp out annoying elements and rectify one or more aesthetic errors in the image. Furthermore, you have the option to optimise exposure, contrast and colours with the help of settings layers and to sharpen the image further. ▪

Tips & Tricks

FEBRUARY 2018

02

Using Magical Jelly Bean Keyfinder will help in fetching your Windows licence keys

WINDOWS & OFFICE

01 Windows 10
Start DVDs and Blu Ray discs under Windows 10

Some DVDs cannot be played under Windows 10 with its built-in tools. Instead, you will require additional programs that can take up this task. Leawo (http://www.leawo.com/), for example, is a media player that not only plays DVDs but also Blu-ray discs. Previously an expensive software, Leawo also supports discs with other country codes and, among others, offers soundtrack and subtitle support. Install Leawo after downloading and insert a DVD or Blu-ray in the drive. Then, start Leawo and check whether your computer can detect the disc. The coloured box

next to the block "Open File" will indicate it. Now, click on the left of the four icons on the top left screen margin and subsequently, select the option "File". Finally, go to "Play Disk" and select the DVD or Blu-ray which you wish to view.

02 Windows
estore untraceable licence keys

Imagine a day when you frantically searching for your Windows license key for a re-installation and come to the conclusion that you have misplaced or lost the note. Well, there are special tools that can help you. One of the popular tools to retrace product keys is Magical Jelly Bean Keyfinder (https://www.magicaljellybean.com/keyfinder/), which will be able to read and list the keys of the software on your computer. You can also use the Ultimate PID Checker to check your own licenses. It checks the validity of the

licenses of Windows XP, Vista, Windows 7 and 8/8.1 – including all variants like Home, Professional and volume licences. Furthermore, the tool examines the MAK counter, which documents the activation option of a volume licence. In the test line "Validity", you will either see the status "Valid" or "Invalid". The PID Checker also checks the server editions Server 2012, 2008 R2, 2008, 2003 and the Office versions 2013 and 2010. If the licenses are present in TXT format in a text file, then the Ultimate PID Checker will also review several Windows keys simultaneously.

03 Word
**Add "Save As" button in the menu group**

By default, there is only one "Save" button in the menu group of Word. A "Save As" button is missing. However, you can add the button with a few tricks so that documents can be copied swiftly

01

Using Leawo will allow you to view most videos without issues
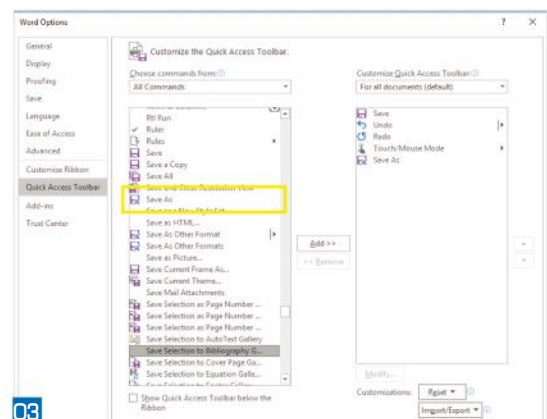
03

The Save As button can be added via Word Options easily if you want it under your Quick Access Toolbar

in future where they are saved under a new name. To set up the "Save As" button, click on the button "Customise Quick Access Toolbar", which can be identified by means of a small arrow with a line above it on the left side area of the menu group. Scroll down to the option "More commands" in the Drop-down menu bearing the same name. A window of "Word Options" will open and under "Quick Access Toolbar", go to "All commands" in the collapsible menu, scroll down to the command "Save As", press the button "Add" and confirm by clicking on OK. Subsequently, you will find the new button "Save As" in the menu group on the left next to the arrow icon.

The original Windows Fax & Scan software, with functions that you usually need

04 Excel
Open XLSX work folders with older Excel versions
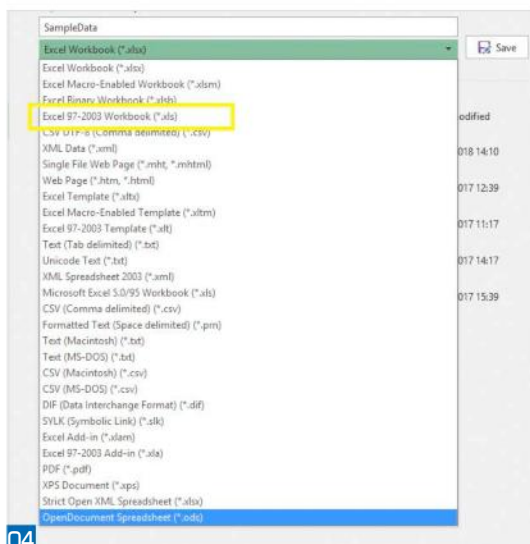
Saving as XLS allows older Excel versions to open the document with less issues

Thanks to compatibility mode, Excel documents can also be opened and edited with older versions of the software. The older Excel versions 97 to 2003 saves its sheets in XLS format. From Excel 2007 onwards, the table calculation saves all files in the XLSX format. If you wish to send such a document to friends or colleagues who have an older Excel version, then you will have to first convert the files. To this, open the menu command "File | Save As" and select the option "Excel 97-2003 Workbook (*.xls)" as the "File Type". If you open an XLS file in a new Excel version, then it will open in compatibility mode. Click on "File" on the top and you will find the category "Compatibility Mode" there. You can convert the document into the XLSX format by clicking on the "Convert" button. However, all functions in the compatibility mode that the old XLS format does not support will not be available. Therefore, there may be changes or shifts in the tables.

05 Windows 10
Scan documents or Photos using Windows tools

Generally, every scanner has its own software, but Windows 10 also has its own built-in software for scanning. After you have installed the scanner, open the start menu below and type "Windows Fax and Scan" in the search window below. Start the Desktop app by clicking on the search result and press the button "New Scan" in the icons bar above. You can individually customise the area to be scanned by clicking on the "Preview" button. After the scanning process, all the scans will land in the "Documents" folder and then in the subfolder "Scanned Documents". A scan can also be forwarded directly as a Fax or mail.

06 Windows 10
Activate and set up screensaver

Although Windows 10 has its own screensaver, the classic screensaver has not yet served its time and can be enabled with a few tricks. Click on the Windows icon on the bottom left and then on the gearwheel icon or open the "Settings" using the key combination [Windows]+[I]. Here, press
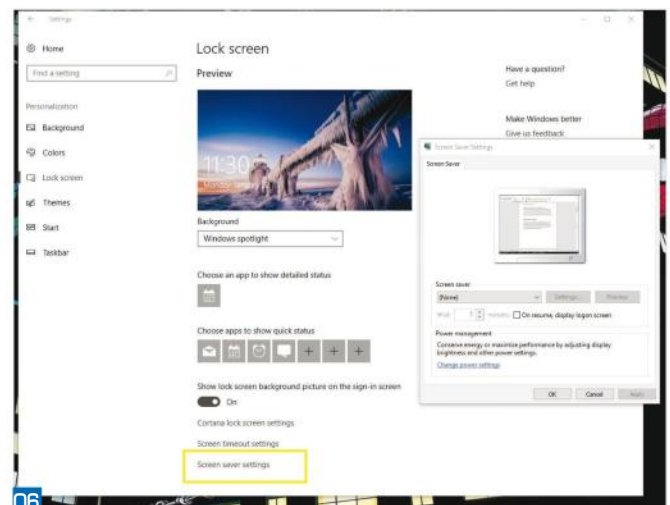

Screen saver settings can still be enabled easily can be found under Lock screen

the "Personalisation" button and switch to the option "Lock screen" in the left column. In the next window, click on the link "Screen saver settings" at the very bottom in the middle. You can now select a screen saver under "Screen saver", customise it via the button "Settings" and set the activation time via the "Wait time" before you save the entire process by clicking on OK.

07 Word
Track changes to text documents

If many people are working on one Word document, then the "Track Changes" function is very helpful to get an overview of the evolution of the text document. Open the file and activate the tab "Review". In the menu group, go to the group "Tracking" and press the "Track Changes" button. You will now get to see all the edits in the text. Changes are marked by a red line on the left side of the text. If you click on a red line, Word will show you the original text, struck-out. Text passages where the editor has left a comment, is marked in red by Word. If you hover the mouse on it, the comment will appear in a text bubble. If you follow the lead on the right-side margin, a field will open with the option to respond to the comment. If you wish to document changes in more details, then you have to change the settings. To do this, click on the small button with the arrow in the "Tracking" group on the bottom right under the "Review" tab. Now, you will have access to several more options for tracking. Also, the function can be locked so that no other editor can disable this function (this works by clicking on the button "Reject and next" in the "Changes" group and calling the command "Reject all changes and stop tracking"). To do this, do not click on the button "Track Changes" but on the button bearing the same name under it and then activating "Lock tracking".

08 Windows 10
Suppress the Runtime-Broker bug and normalise CPU load
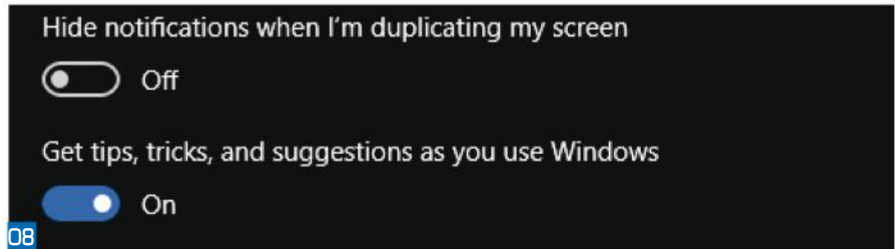
By turning off "Get tips, tricks and suggestions..." you can normalise your CPU load

An increased CPU load occurs occasionally while Windows 10 is idling. This load can lead to an increase in power consumption, which is bad for the battery life of notebooks. The "Runtime Broker" process is responsible for this. It can be found in the Task Manager and works along with the function "Receive tips, tricks and suggestions while using Windows". It is not necessary to disable the Runtime Broker to remove

the bug, since all you need to do is simply disable the Windows 10 tips. To do this, open the "Settings" by clicking on the Start button and the gearwheel icon or entering the key combination [Windows]+[I], and press the "System" button. In the following window, go to the option "Notifications and Actions" in the left column. After clicking on it, go to the option "Get tips, tricks and suggestions while using Windows" under "Notifications" and move the slider to the "Off" position. A simple mouse click on the slider will give you the same result. Finally, restart the computer so that Windows implements the changes.
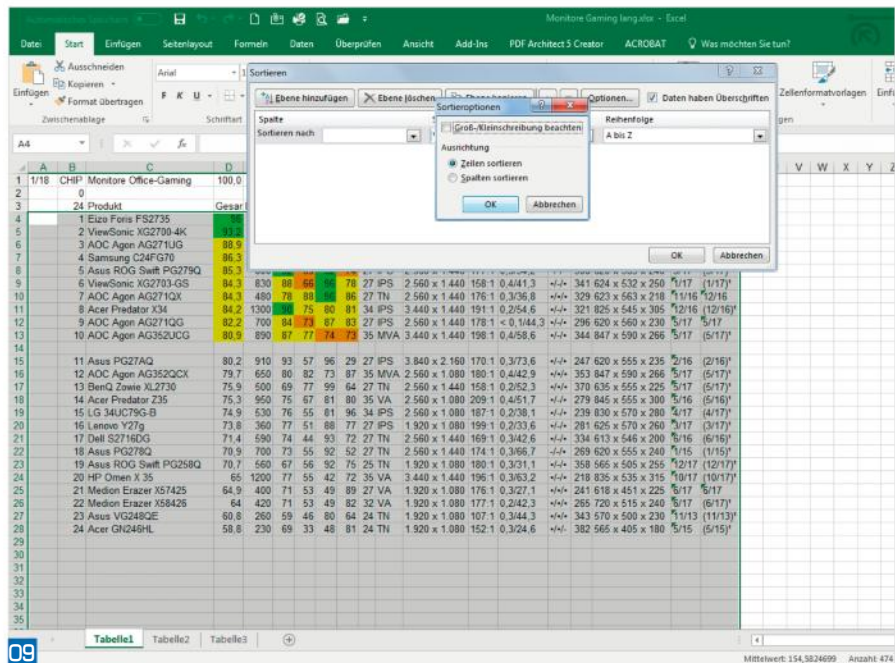
Easily sort Excel tables by setting criteria
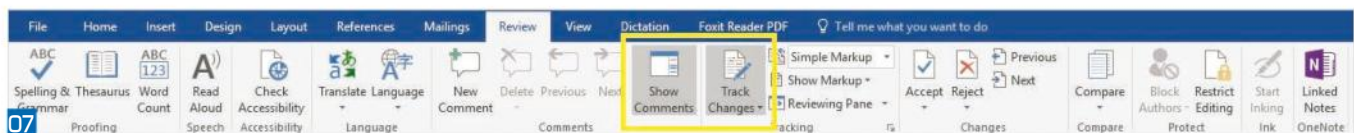
By enabling "Track Changes" you can see what was changed by another editor easily

09 Excel
### Sort tables according to different criteria

If you sort Excel tables correctly, then the end result will have an overall cleaner look and Excel offers many options for this. The starting point is the button labelled "Sort and Filter", which can be found within the "Editing" menu (on the right side) under the "Home" tab menu that can be found within the "Home" tab. Basically, you have to select the elements concerned before sorting.

You can sort the contents of your table alphabetically or in an ascending or descending manner according to numbers. For instance, this will be helpful when you wish to sort a table according to the initials of the included names. Excel will be able to show you the highest or the lowest value first. When you click on "User-defined Sorting", other arrangements will be made available. In addition, the tables can be sorted according to columns. At this point, you can also check whether you wish to check upper and lower case if, which is more about alphabetical sequence. To do this, click on "Options" and make your selection.

A table can also be arranged according to "Cell colour". You can select the appropriate criteria in the "Sort by" area in the "Sort" window, which opens after you click on "User-defined sorting". Your table also gets an overview when you arrange it according to the "Font colour". Another important sorting criteria is the "Cell icon". Finally, you also have the option to select a "User-defined List" in the "Sequence" area and then sorting according to date or even time.

10 Windows 10
Review and modify status of the firewall

It is known that you should use Windows 10 with the firewall activated at all times. Therefore, a quick look under the bonnet would be worthwhile to check the status of the firewall. Type "Firewall" in the Search window and click on the search result. You will immediately see whether the firewall is activated via the
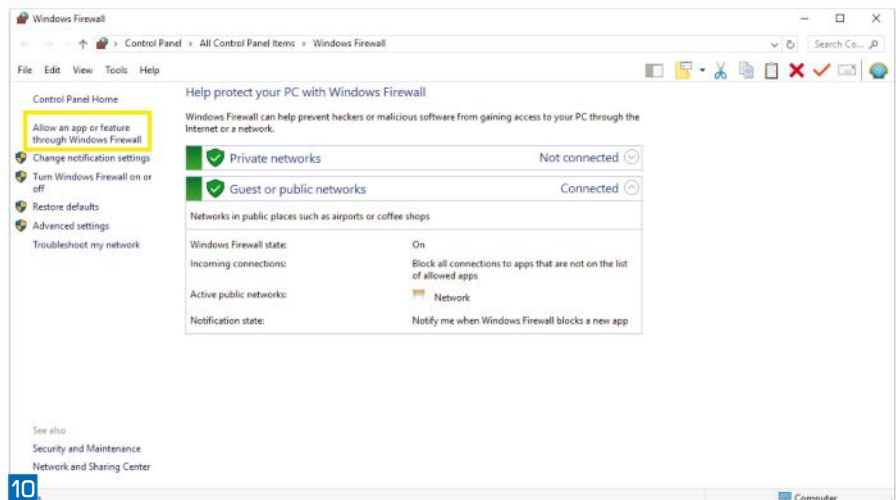
Check what apps you have allowed to bypass Windows Firewall

connection status of your networks. In order to control the communication of the apps through the firewall, go to the link "Allow an app or a feature through the Windows firewall" on the left column. To carry out further settings, such as importing guidelines or formulating firewall rules, click a bit further below on "Advanced Settings".

11 Word
Combine landscape and portrait format in one document

You need not be confined to a fixed format in a text document. Moreover, you can vary between landscape and portrait format. To switch from the portrait to landscape format, first select the text section that you wish to reformat. Next, open the tab "Layout" and click

You don't have to stick to one format within a single Word document, you can change it to Landscape or Portrait easily

on the small arrow icon in the bottom right corner in the group "Page Setup" in the menu group. Now, a window "Page Setup" will open with the tab "Page margins". You can now select the "Landscape" format in the "Alignment" area, as well as set either the option for "Selected Text" or "Entire document" in the list field under "Apply for". Finally, apply your settings to Word by clicking on OK.
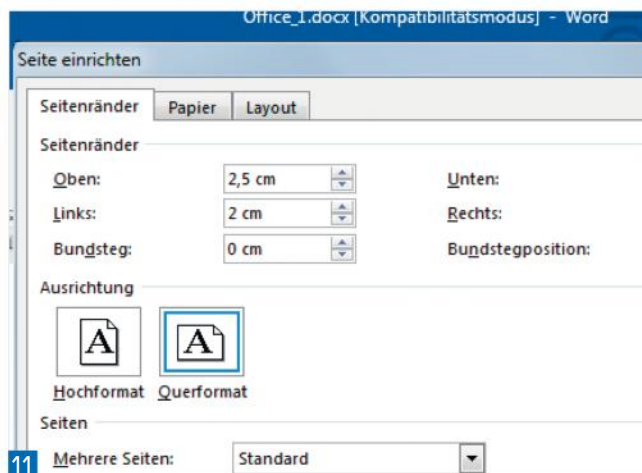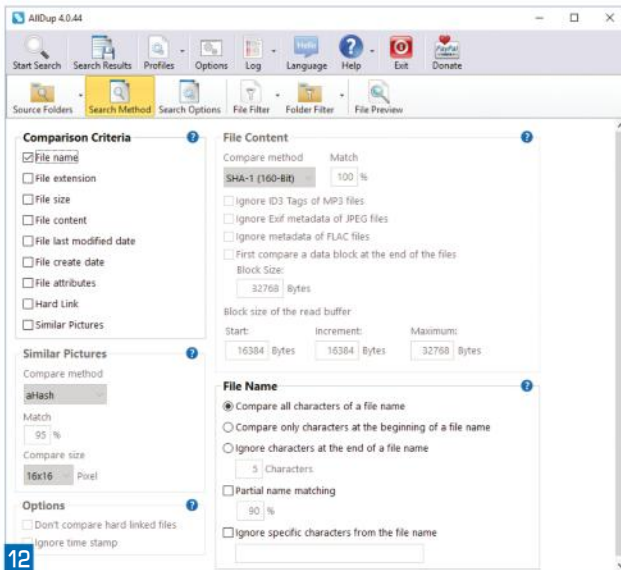
12 Windows
Track and remove file duplicates

Duplicated files occupy memory space unnecessarily. Tools like AllDup (http://www.alldup.de/en_index.php) help in such cases. It tracks duplicates, so that you can purge any unwanted duplicates immediately if you need to. After the installation, select the folder you want AllDup to search. You can refine the search criteria in the second toolbar. Click on "Search Method" to do so. With the search, you can not only consider the file name for the future search but also the file ending or file size. If you work often with archives like ZIP or RAR, then you have the option, to search the

AllDup will easily track and allow you to remove duplicated files, saving you precious storage space
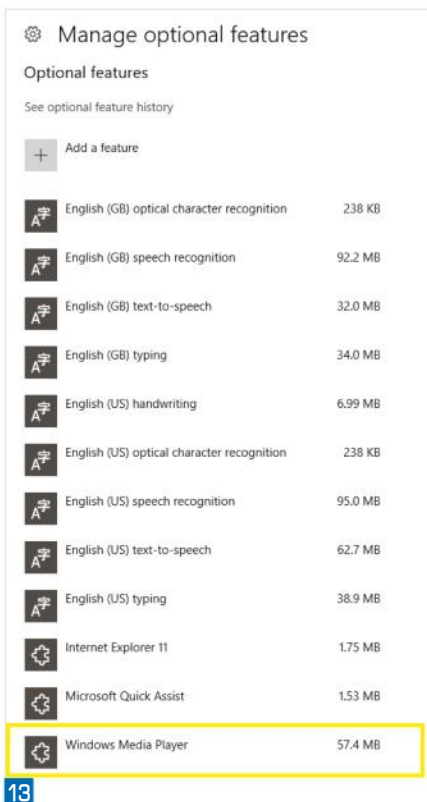
contents of the archives. To do this, click on "Search Options" and activate the two file formats in the "Scan Archive Files" section. Once you have completed the preparation for the search, press the "Start Search" button in the menu bar. You will now see all the duplicates

Windows Media Player can be found under Optional Features. If not, you can enable it via "Add a feature"

in a new window. After clicking on the small triangle before a file name, AllDup will show the location of the duplicates. You can then decide which of the two files you want to delete. As soon as you have marked all the duplicates, click on "Search Result | File Manager" in the menu bar. Thsi is where you can determine the fate of the duplicates.

13 **Windows 10**
Retrieve the missing Windows Media Player

The Media Player was mysteriously uninstalled since the last Windows 10 update. To revoke this change, open the "Settings" by clicking on the Start button and the gearwheel icon, or you could right click on the Taskbar and select "Settings". After clicking on the "Apps" button, you will come to the page "Apps & Features" where you have to click on the link "Manage optional features". Next, press the "Add a feature" button. In the next window, scroll down and go to the option "Windows Media Player". Click on the button "Install" and the Media Player will be ready for use again.

14 **PowerPoint**
Customise the cover page design to the theme and target audience

The cover page of a presentation should be visually appealing but also contain information about the topic. Apart from the title, which should be sufficiently large and readable, your name is also important. You can put your name and other information in a smaller font size in the top left corner. A decent and professional design is recommended for a presentation at a university or in front of a new audience, otherwise you can also use bright colours and images.

HARDWARE

15 **Micro-SD Card**
Delete sensitive photos and data securely from the memory card

Private photos and data are often present on Micro SD cards. It is better you delete this data before you sell or pass on the memory card. This works most thoroughly with a special tool like the Eraser (https://eraser.heidi.ie/), which formats the SD card reliably. After installing the program, connect the Micro SD card with the PC with the help of a USB card reader such that it appears as a drive in the Explorer. Now, create a "New Task" in the "Erase Schedule" via the collapsible menu and click on the button "Add Data" in the following window "Task Properties". The window "Select Data to erase" will now open. Here, set the option "Drive/
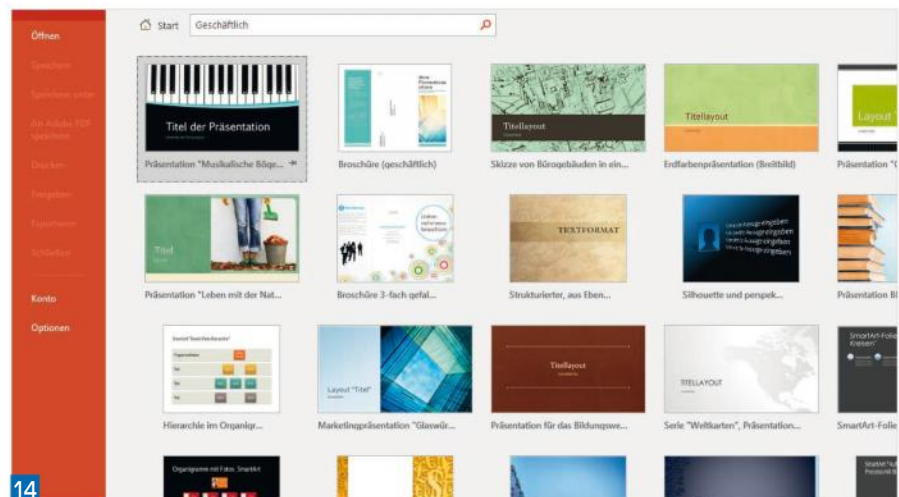
Designing a proper theme and cover page will catch your audience's attention at a glance

Subscribe To CHIP

EFFECTIVE _____ ISSUE

☐ **Subscription renewal, Subscription code:** _____

PERSONAL INFO (*Please write neatly in BLOCK letters*)

Name Mr/Ms/Dr   NRIC

Mailing Address

                                                       Postal Code

Phone OFF/HOME   H/P   E-mail

PAYMENT INFO (*Please ☑ tick ONE of each of the following*)

☐ I have enclosed a cheque in favour of Online Dynamics (M) Sdn. Bhd.

Cheque No   **Name of Bank**   **Money/Postal Order No.**

SUBSCRIPTION VIA CREDIT CARD, KINDLY LOG ON TO 'www.chip com.my' FOR IMMEDIATE PROCESSING

GENERAL INFO (

Age ☐ 15-20 ☐ 21-30 ☐ 31-40 ☐ Over 40

Highest Education ☐ University ☐ Polytechnic ☐ Pre University ☐ Secondary

Occupation ☐ Self Employed ☐ Employed ☐ Student ☐ Unemployed

Name of Company/School

Designation

Industry ☐ IT ☐ Manufacturing ☐ Finance ☐ Service ☐ Medical ☐ Legal ☐ Engineering ☐ Others (please specify, _____)

Anual Income ☐ RM18,000 & below) ☐ RM18,001-RM30,000 ☐ RM30,001-RM50,000 ☐ Over RM50,000

IT Proficiency Level:
☐ 1) Beginner ☐ 2) Intermediate Beginner ☐ 3) Advanced Beginner
☐ 4) Semi-IT Professional ☐ 5) IT Professional

Computer Usage: (Check all that apply)
Do you own PC? ☐ Yes ☐ No   Do you own a Notebook? ☐ Yes ☐ No
Do you own a 3G phone? ☐ Yes ☐ No
PC Acess   ☐ Home ☐ Work ☐ School ☐ Cyber Cafe

Signature
Date

CHIP
MALAYSIA
www.chip.com.my
internationally trusted technology magazine

Using the Eraser software will cleanly erase data from your SD card

you until you hear a second beep. Next, press then PS button on the Controller and plug the USB stick with the data that you have backed up on the USB. Subsequently, select the option "Initialise PS4 (Reinstall system software) " on the console and confirm your selection. The operating system will now search for the update file on the stick and after the process is complete, you can set up the console as usual and continue playing.

17 Sonos One
Connect Sonos loudspeaker with Amazon Alexa

Partition" under "Target Type" and go in the drop down menu, to the USB card reader, which appears as "Removable Media". The task will then appear in the schedule. After right-clicking on it, select the command "Run now". The data will be deleted for good once the deletion process is over, unlike other deletions via the Explorer.

16 PlayStation 4
Back up data and change the hard disk of the PlayStation 4

The storage of your Sony console can be replaced easily by a larger one. But you should save your files before doing so. To do this, plug a USB stick into the PlayStation, go to the "Settings" and click on "Managing data saved by the application". Here, select "Data saved in the system memory" and "Copy to USB storage device". Next, download the latest firmware for the PS4 from your PC and copy it to the folder "PS4\UPDATE\" on the USB stick.

Before installing the new hard disk, disconnect the power supply of the console and also remove all other cables. Now, the cover is located on glossy side of the front cover for the first gen PS4, or at the back of the PS4 Slim and PS4 Pro. Use a Philips screwdriver to loosen the screws that holds the hard disk bay in place, then remove a total of four screws from the bay to remove the hard disk. Now, screw the new hard disk on, place the bay again into the console and screw that in. Finally, place the cover on the PlayStation back and switch it on. Next, hold the switch for the console

in the safe mode by connecting the Controller with the console via a USB cable. Press and keep the "On" button pressed for minimum 7 seconds till

Backing up your data and firmware is vital when changing storage of your PlayStation 4, saving you time and saving you heartache when you forget to backup your precious 100% game save

The loudspeaker Sonos One can be easily connected with Amazon's voice assistant Alexa. But before you proceed, set up Alexa and your Sonos system. To do this, keep your Amazon and Sonos account information ready. Thereafter, open the Alexa app on your smartphone and tap on "Skills". Enter the term "Sonos" in the Search bar and tap on the magnifying glass. Next, go to the Sonos skill, call the command "Activate Sonos Skill" and log in with your Sonos account. To add your Sonos device, simply say "Alexa, find devices". Alternatively, you can tap on "Search" in the menu under "Smart Home | Devices" in the Alexa app and then add the devices found with just a simple tap. With the option
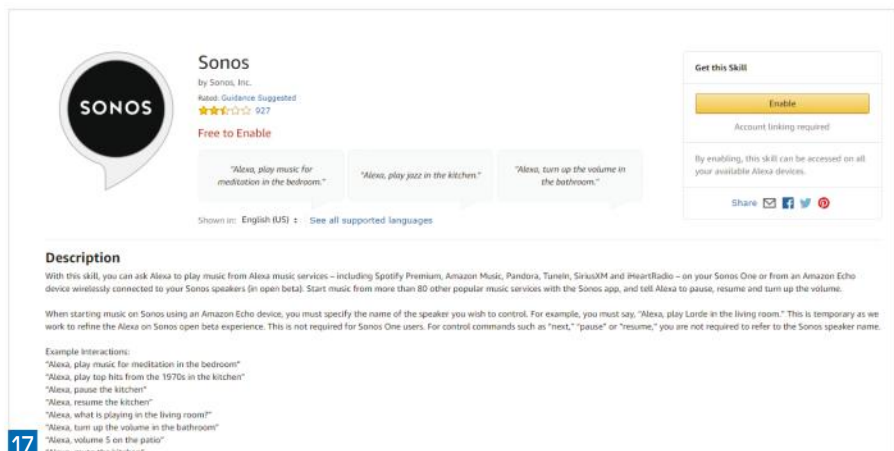
Setting up the Sonos skill for Alexa is easy, and it allows you to control it using just your voice

"Check music services in Alexa", you can link music services like Amazon Music or TuneIn Radio, to Alexa. Subsequently, you have to add music services that you wish to use to the Sonos app too.

18 Notebook battery
Analyse and repair malfunctioning Notebook battery

If you notice that your notebook battery isn't getting charged, then first shut down your computer and try to remove the battery from the device. With most models, this is done by removing two levers on the lower side of the laptop. Now, check the contacts and carefully clean them using a soft cloth or a tissue. Under certain conditions, the tools 'Battery Optimizer' (https://www.reviversoft.com/battery-optimizer/) and 'BatteryInfoView' (https://www.nirsoft.net/utils/battery_information_view.html) can help you in analysing for defects. After cleaning the contacts, connect the power supply but keep the battery removed. If the computer works without the battery, then you do not need to change the battery, if you do not wish to depend on being plugged into external power. You can purchase replacement batteries for your laptop, but they will usually cost more than RM100. If the battery is non-removable, then you have to take the notebook to a service centre or the manufacturer if the warranty is still valid.

19 Smartphone
Get the display of your Android phone to rotate again

If the screen of your Samsung Galaxy S8 does not rotate when you move the

RED	GREEN	BLUE
RECEIVER	VIBRATION	MEGA CAM
SENSOR	TOUCH	SPEAKER
SUB KEY	FRONT CAM	GRIPSENSOR
LED	BARCODE EMULATOR TEST	SENSORHUB TEST
BLACK	HALL IC	S-PEN
MST TEST	MLC	IRIS CAMERA TEST

19

On a Samsung device, you can type in *#0*# will allow you to perform some tests on your device such as colour test with Red, Green or Blue, while Sensor allows you to test your phones sensor

activated the screen lock. To confirm, pull down the notification bar. Here, you will find the settings for Wi-Fi, Bluetooth and etc., depending on what you set it to. You will see the "Portrait" option somewhere on the menu. After tapping on this option, it will change to "Rotate Screen". The display should now rotate as soon as you move the phone to landscape format. If this action does not happen, then the error may be in the gyro sensor. You can check this by opening the phone app on the Galaxy S8. Here, type the code "*#0*#" (without the quotes). A menu will open, where the "Sensor" option will be available. You should constantly change the values under "Gyroscope Sensor", then calibrate this sensor with the "Gyro Selftest". If this also doesn't showing any positive result, then it is probably a hardware defect and Samsung Customer Service should be contacted.

20 Micro-SD card
Repair access to the smartphone memory card

If your cell phone does not recognise the micro SD card after it has been inserted, then there are some options to solve this problem. First, check whether the memory card is connected to the card slot and press it again firmly into the slot. Unclean contacts may often be the cause. In this case, clean them using a cotton bud and some rubbing alcohol – not with water. If it is a new card, then check the instructions of your cell phone whether the device supports the capacity of the memory card. You should also try

smartphone to landscape format, then either the software setting or incorrect calibration of a sensor is responsible for the malfunction. The cause mostly lies in the settings, where the user has accidentally

18

Do note that notebooks with a removable battery allows you to easily change the battery without skipping a beat

20

*Make sure that your microSD card capacity does not exceed your device's maximum allowance*

formatting the card.

21 Photography
Shoot gripping photos in the autumn mist

Photography in an autumn mist is a challenge in itself. Basically, you will have to position yourself in a way that allows you to work against the light of the rising sun. Thus, you can capture light rays and particularly interesting colour effects caused by the mist. The lighting conditions are usually great in the morning. However, contrast is greatly reduced in misty conditions, which hampers the focus. Therefore, search for a motif with staggered trees, street lamps, pickets or other structures that are at a graded distance from you. This will give depth to the photo. An object on the edge should be close to the camera in most cases.
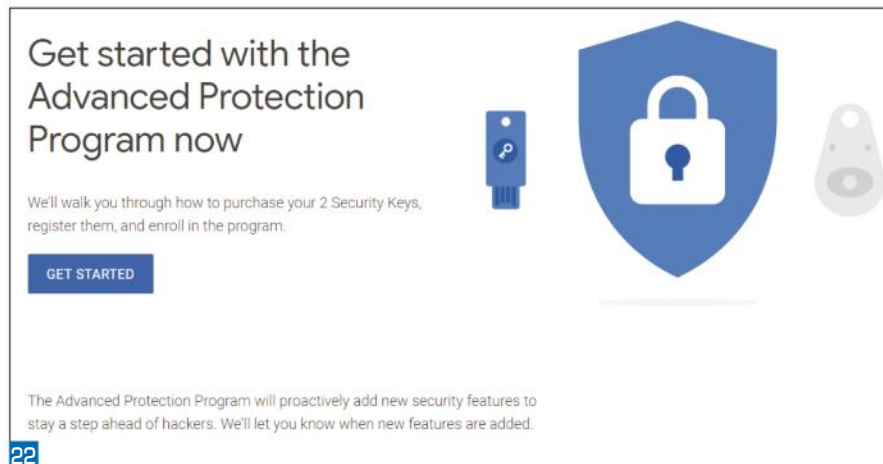
The auto-exposure and the flash should be disabled. Set the exposure higher than that specified by the light meter as the light reflections of the mist will have an impact on it. A half or entire level higher will prevent a grey tint. A tripod is also helpful for mist photos. Otherwise, a fixed surface, like a wall, will work just as well. The diffused light conditions in the mist require longer exposure times and therefore, shaking will ruin the picture. Press the trigger gently and experiment with the exposure times. You should not proceed too slowly, otherwise the mist will appear too thick and undefined. If you want to, you can
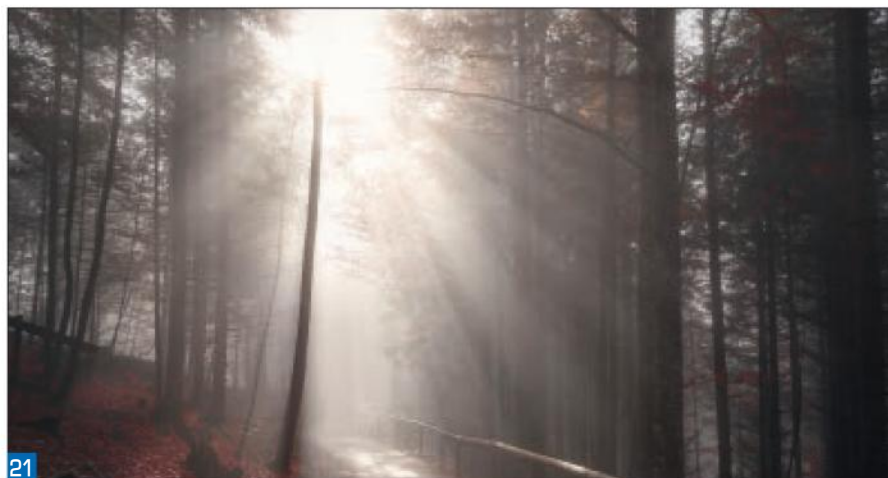
also document the typical mist wafts for burst photos.

22 E-mail
Secure Gmail account from Google better using on-board resources

Getting started with Advanced Protection Program gives you an added layer of security for your Google account

Google has revamped its mail service Gmail with improved security standards that can be activated under "Advanced Protection". An important element is the Two-step authentication. It sends you a code via SMS, or uses a physical USB security key when you you wish to log in on a new computer. This code must be used to get access. Google has also restricted the authorisation for applications. Many apps can access other things like mails to send feedback to the app developers via mail, while some are also allowed to access Google Drive

to store photos there. This makes mails and Google Drive vulnerable to attacks. With the function "Advanced Protection", Google can block access to mails and Drive from all other apps. In future, you will be able to access data only via Gmail and the Drive app, after logging in.

And in order to increase the security, the best option is to work with two-step authentication, which also makes use of a physical USB security key. We recommend using the Google Security Check to check the security status of your account, since it can alert you if there are vulnerabilities. You should also change your password at least once a year and ensure that it is not vulnerable. Check regularly on the security page of Google as to which apps are linked to your account and devices you are logged on to. If you are not using an app or a device anymore, then you can remove it from the list. In the interest of your privacy, you should disable the options "Social recommendations", "Location release" to restrict the data collection. In the settings, check whether all addresses belong to you when you click on "Send as". You should also carefully examine the option "Grant following users access to my account" and the forwarding function.

23 Streaming
Suppress Netflix suggestions for future video consumption

Once you have viewed a movie or a series on Netflix, you will inevitably start

Photo taking with mists usually require longer exposure time, depending on what you want to take
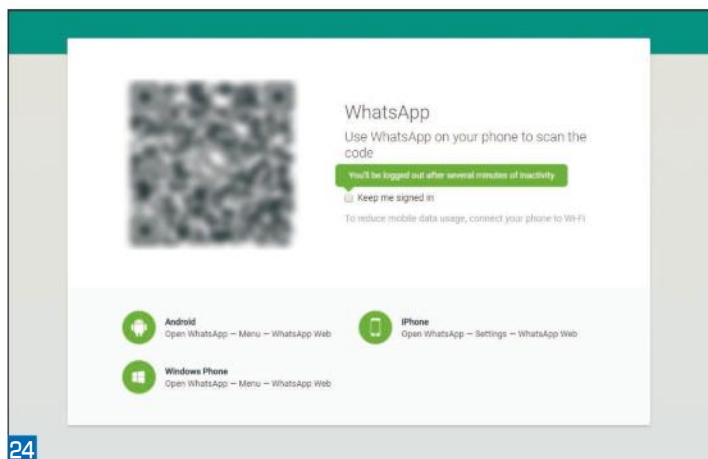
Easily remove Netflix suggestions for video suggestions if you do not wish to have random videos suggested to you

receiving a lot of suggestions about similar videos – regardless of whether

you have previously seen them. However, you can stop these offers easily. To do this, log in to your Netflix account, click on "My account" and then select the option "What you have viewed". A list of all the titles viewed

24
Using Whatsapp Web helps with reducing your data usage while in the office

by you will appear under "My activity". By clicking on the cross on the right-side margin, you can remove each video from this list, so that suggestions for similar movies are not shown in future. However, it may take up to 24 hours till Netflix applies these changes.

24   Messenger
Install WhatsApp on the desktop PC

You can also use the popular messenger on the PC. This will mainly simplify the typing of longer messages. Go to the website https://web.whatsapp.com, which will show you a QR code. Take your cell phone, activate WhatsApp, then tap on the three dots on the top right and select "WhatsApp Web" if you're using Android. For iOS, you have to go to the "Settings" and look for the option

"WhatsApp Web/Desktop". Scan the QR code on the PC screen using your

smartphone. Once you've done so, the usual WhatsApp interface will appear on

the monitor. If you are using WhatsApp regularly on the PC, then you could also install the WhatsApp for PC application (https://www.whatsapp.com/download/). Scan the QR code once as described above and you can then start WhatsApp on the computer.

25   Photography
Shoot perfect photos with the correct lighting

The correct lighting can be a deciding factor when you are producing amazing photos. For instance, a soft light, which naturally occurs on a cloudy day, is very good for portraits. You can get another great effect with grazing light when the light falls on the person laterally from behind, which will provide clear separation between the model and background. To capture only the silhouette of a person, you should work with backlighting. For landscape photography, you can get amazing results in the so-called blue hour that is just before sunrise and after sunset, when the sky shows off an intensive blue colour. This implies that the time thereafter – i.e. just after sunset and just before sunset, is perfect for landscape photography. There's also the golden hour, with its warm, reddish-golden light and long shadows. Somewhat elaborate, but absolutely recommended are night-time photos. However, for those, you will need to use a tripod and set a low ISO value. ◼

25
Using the known "blue or golden hour" for photography to your advantage

25/01/2018

Penguins projected with Hawaiian suits using an Epson projector, who knew they could be cuter?!

17/01/2018

Synchronised swimmers recovered the Samsung A8 that Mr. Yoonsoo Kim dropped in the water

17/01/2018

Showing off the A8 and A8+ waterproof capabilities

23/01/2018

All smiles for the Sennheiser HD1 Pink Floyd Edition

21/01/2018

A massive Roshan was spotted at Acer's Asia Pacific Predator League 2018 in Jakarta

25/01/2018

Scribbling on projections could be fun as well using Epson's projection solutions

23/01/2018

A cupdelier?

25/01/2018

RM 6 for an espresso from the Epson Cafe? Sign me up !

17/01/2018

Smiles that could terminate us, all thanks to Thunderobot

26/01/2018

Famous idol group, BNK48 performing at the launch of Lenovo Legion of Champions Series II in Bangkok

Is Hybrid The Right Way?

Plug in hybrids seem to be the best of both worlds, but they also come with the disadvantages and weaknesses of both worlds. We're going to help you by comparing different hybrids to best aid you with your future decision.

DotA-fied Genting Experience

16 world-class DotA 2 teams compete against each other in a massive showdown, but only six will proceed to the playoffs. Only one will stand victorious as the ESL One Genting 2018 champion! Be sure to check our next issue for the full breakdown.

Uncrackable Screen Protection?

There have been people who, recently and over the years, claim that they have a fluid that can protect your screen from scratches and even blunt trauma. We debunk such claims in this article.