

The Spy Chip
Controversy

Smart Mobile
Backup

Don't Throw It,
Snazz It

January 2019 RM9.90



[www.chip.com.my](http://www(chip.com.my)

internationally trusted technology magazine

ALL POWER TO THE ALGORITHMS?

Artificial intelligence are designed to improve our lives but over-reliance on them can create new dilemmas. This issue, we explore some of the real-life and ethical scenarios that may arise from faulty algorithms

REVIEWS ASUS ROG Zephyrus S, Lenovo Legion Y530, MSI Vigor GK60, ASRock Z390 Taichi, HTC Vive Pro, Suunto 9, Acer Predator Orion 9000, Alienware 15 R4, Sonos Beam

ISSN 1675-0322



Large Format Printer

Fulfilling indoor and outdoor requirements from one printer



M64s LCIS

- Eco-Solvent 64"
- Large capacity ink system
- Good outdoor durability
- 3 years warranty
- C, M, Y, K, Lc, Lm
- Low odour ink
- High production speed
- (Hardware & print head)



Cheers To Another Year Of Great Tech

Welcome to 2019! Last year had a good share of ups and downs, but we feel that it was overall a good year for PC and consumer tech.

Taking a short look back at 2018, one highlight that comes to mind was Intel dropping the ball in multiple CPU segments, allowing AMD to claw away a large chunk of market share. We also saw smartphone manufacturers start to produce and market "gaming phones", while other smartphones with notched displays kept popping up faster than mushrooms after a rainstorm.

Some of the 2018 trends are expected to continue in 2019, particularly AMD's dominance in the consumer CPU space with the expected launch of new CPUs based on the Zen 2 architecture at the Consumer Electronics Show 2019. We're not as sure about notched displays or gaming phones, but we hope the former goes away for good.

Speaking of CES 2019, we will be doing a round-up of major announcements from major brands at the event in our next issue, so make sure you look out for that! On our end, we're really hoping that PC components gets a bit more love and care from manufacturers.

For now, we hope you enjoy the content that this January 2019 has to offer. Till next time!

Matthew Yap
Deputy Editor



Managing Director Noor Azman

Head of Department YK Cheah

EDITORIAL

Deputy Editor Matthew Yap

Writer Nixon Ng

Writer Rikco Shim

Contributors Felix Knoke, Sepp Reitberger, Jörg Geiger, Andreas Th. Fisher, Fabian Von Keudell, Roman Leipold, Ibrahim Altiparmak, Heiko Bauer, Artur Hoffmann, Martin Jäger, Christoph Schmidt, Matthias Semlinger, Andreas Vogelsang,

Design & Layout Zhafri Rauf

Cover Design Zhafri Rauf

SALES & MARKETING

Senior Manager YK Cheah

Account Manager Connor Tan

Consultant Muffadzlee Dato' Sufian

ADMINISTRATION

Admin Manager WP Lim

ONLINE

www(chip.com.my)

CHIP Malaysia

PUBLISHER

Online Dynamics (M) Sdn. Bhd.

A-5-07 Block A, Neo Damansara

Bandar Damansara Perdana, Jalan PJU 8/1

47820 Petaling Jaya, Selangor, Malaysia

Tel: (03) 7727 6554 Fax: (03) 7727 3554

PRINTED BY

Unipress Printer Sdn. Bhd.

117-G, Jalan Tiaj 1/4, Taman Industri Alam Jaya,

42300 Bandar Puncak Alam,

Selangor Darul Ehsan.

Tel: (03) 6038 5578 Fax: (03) 6038 3944

DISTRIBUTED BY

MPH Distributors Sdn. Bhd.

Ground Floor Warehouse, Lot 2, Bangunan TH,

No. 5, Jalan Bersatu, Section 13/4,

46200 Petaling Jaya, Selangor

Tel: (03) 7958 1688 Fax: (03) 7956 5995

© This edition of CHIP is a publication of Online Dynamics (M) Sdn. Bhd. licensed by Vögel Burda Holding GmbH, 80336 Munich, Germany.

© Copyright of the trademark "CHIP" by Vögel Burda Holding GmbH, 80336 Munich, Germany.

No part of CHIP magazine / shall be reproduced without the publisher's written permission.

All views expressed in the magazine are solely those of the writer and do not necessarily represent those of CHIP magazine / the publisher.

All information in the magazine is provided 'as is' and 'as available' and CHIP magazine / the publisher makes no representations and gives no warranty of any kind, implied, express or statutory as to the accuracy, adequacy, completeness, non-infringement of 3rd party rights, title, merchantability and / or suitability / fitness for a particular purpose with respect to the said information.

Under no circumstances whatsoever shall the CHIP magazine / the publisher be liable for any direct, indirect, special or consequential damages whether in contract or in tort arising out of or in connection with the use of the information made available in CHIP magazine.

All prices, product versions and URLs' are correct at the time of printing.

International Members of the CHIP Family



China



Czech Republic



Germany



Hungary



India



Indonesia



Italy



Netherlands



Poland



Romania



Russia



Thailand



Turkey



Ukraine

CONTENTS

January 2019



COVER STORY

062 All Power To The Algorithms

AI and algorithms are beginning to raise concerns in many areas, let's look into the morals and ethics that need considering



NEWS & TRENDS

006 Local News

Coverage of the latest news and events right on our shores

024 World Wired Web

All the latest tech happenings around the world

022 Security Reports

Monthly dose of security news

FEATURES

032 Small Data For Big Benefits

Big Data alone is often not enough. But with some Small Data, much more can be revealed

050 Hydrogen: The Alternatives To Batteries

Hydrogen is being considered as an alternative to batteries for e-cars, but is the technology sound?

042 Immersion Into Virtual Worlds

Virtual reality may not be getting as much traction as expected, so how about augmented reality?

TEST LAB

078 Reviews

Professionally conducted reviews following our stringent tests and benchmarks



080



LITE & LEISURE

98 Play: Killing Floor 2

Do you like shooting up zombies? Then this game may be just for you

108 E-Sports Express

What's the latest gossip in the e-sports world?

114 Made By The Masses

A look at some interesting crowdfunded products you should know



PRACTICE

116 More Privacy For Windows 10

Privacy has always been an issue with Windows 10. We tell you how to secure yourself

REGULARS

001 Welcome Note

118 Tips and Tricks



CHIP Downloads

January 2019

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](http://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!

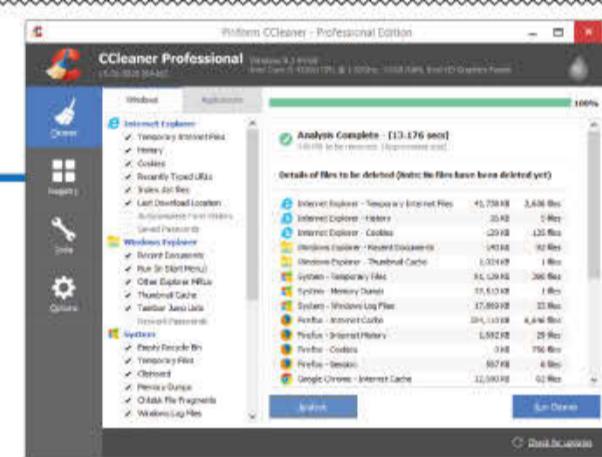
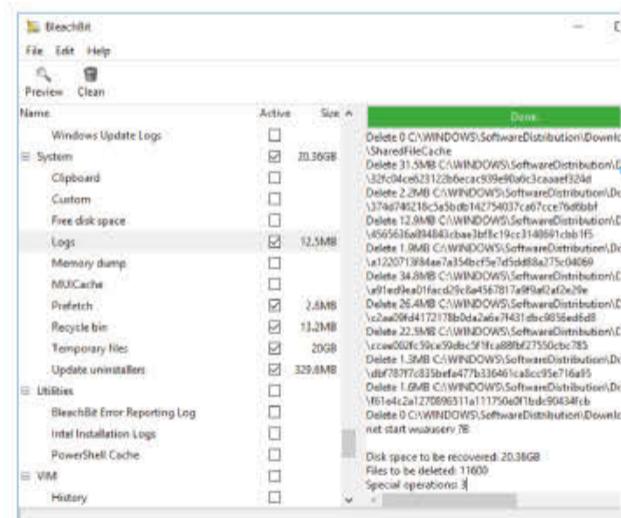
And it's as easy as that!

PASSWORD FOR JANUARY 2019 - revolutionviaalgorithms

Featured Tools

CCleaner

Is your computer running slow? As it gets older it collects unused files and settings that take up hard drive space, making it slower and slower. CCleaner cleans up these files and makes it faster instantly.

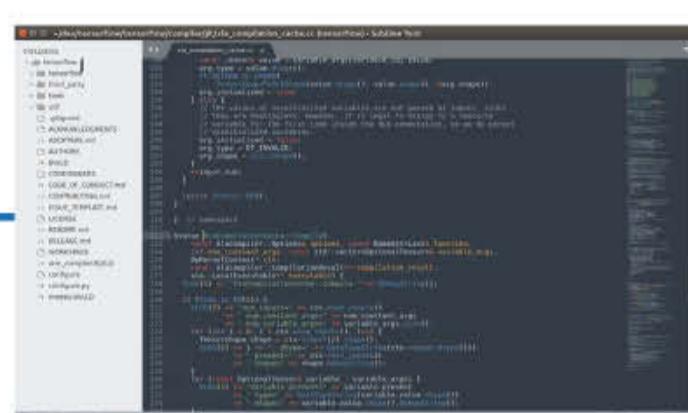


BleachBit

When your computer is getting full, BleachBit quickly frees disk space. With BleachBit you can free cache, delete cookies, clear Internet history, shred temporary files, delete logs, and discard junk you didn't know was there.

Sublime Text

Sublime Text is a versatile editor for programmers, but you don't need to be one in order to use it. You also don't need to configure it extensively to be productive, as it's an efficient tool out of the box.



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.

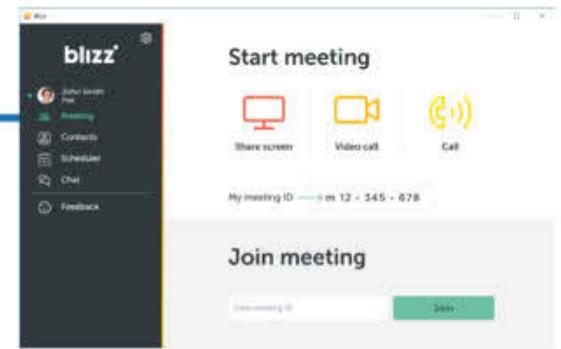


The Monthly Downloads

Blizz

Operating system: Windows, macOS

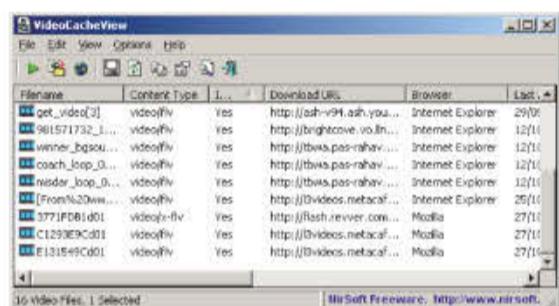
Take your conference anywhere with Blizz, an alternative for Skype that allows you to join meetings instantly in a single click. It supports huge meetings for up to 300 people at a time.



Free Audio Video Pack

Operating system: Windows

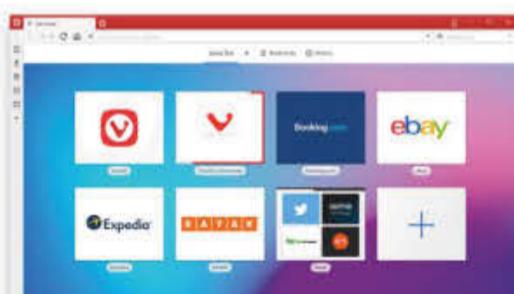
Free Audio Video Pack is a collection of portable video and audio converters that helps you to convert between all most popular audio and video formats like AVI, MPG, MP4, MP3, WAV, FLAC, AAC, MOV, and more.



MicroSIP

Operating system: Windows, macOS, Linux

MicroSIP allows you to make high quality VoIP calls via open SIP protocol. From the cloud of SIP providers, choose the best one for you, register an account and use it with MicroSIP. You'll get free person-to-person calls and cheap international calls.



ClipGrab

Operating system: Windows, macOS, Linux

ClipGrab is a free downloader and converter for YouTube, Vimeo, Facebook and many other online video sites. It converts downloaded videos to MPEG4, MP3 or other formats in just one easy step.



CloneApp

Operating system: Windows

CloneApp is a free and portable program for Microsoft Windows devices to back up preferences, settings and other data of supported applications. CloneApp is highly customisable and can be extended via "plug-ins".



Vivaldi

Operating system: Windows, macOS, Linux

A browser should adapt to you, not the other way around. Vivaldi allows users to customise and tweak every square inch of their browser to make it their own, without sacrificing performance or security.

VideoCacheView

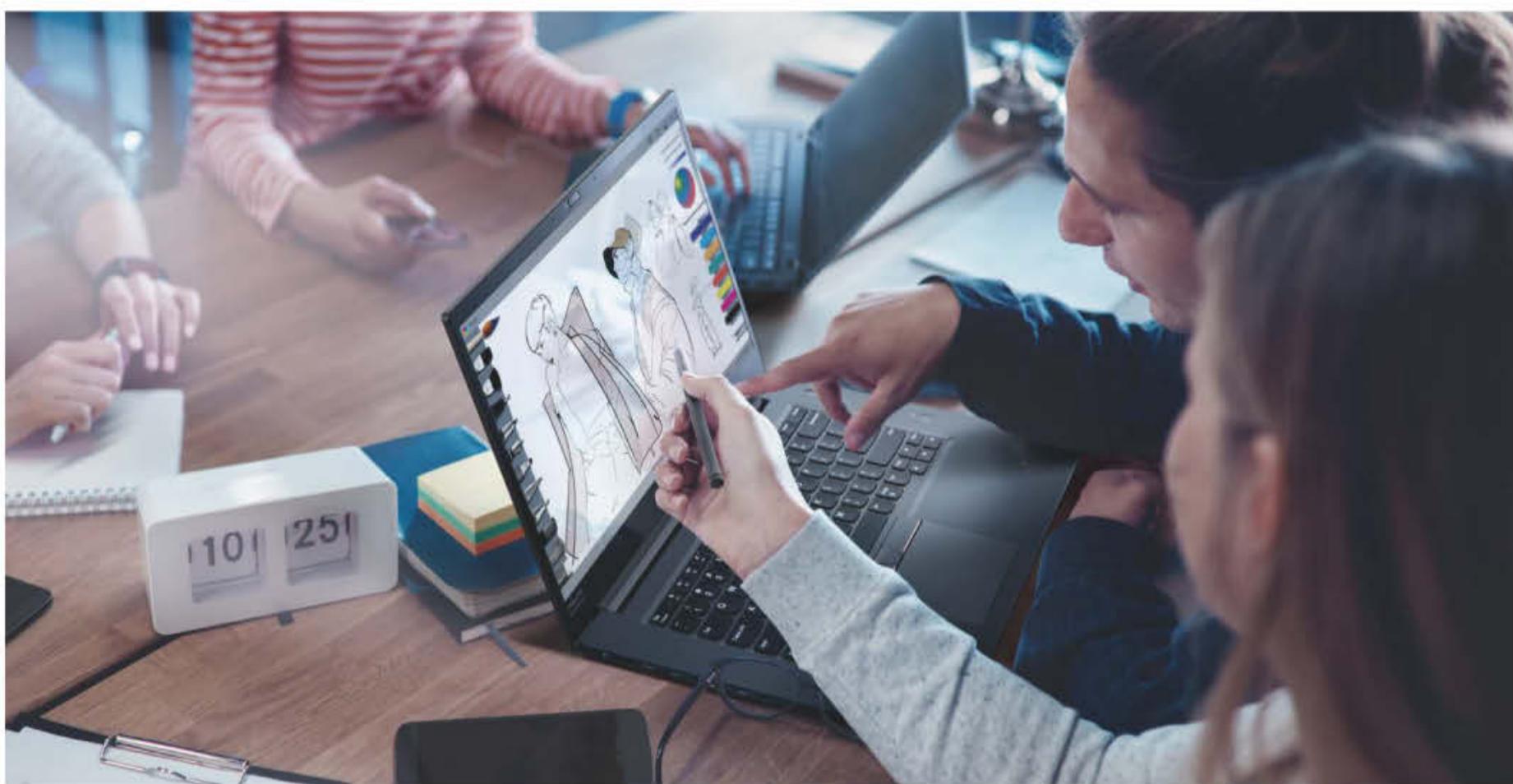
Operating system: Windows

After watching a video on a website, you may want to save the video file into your local disk to view it offline in the future. If the video file is stored in your browser's cache, this utility can help you to extract the video file from the cache and save it to your local storage.

Pixelitor

Operating system: Windows, macOS, Linux

Pixelitor is an open source image editor that supports layers, layer masks, text layers, filters, multiple undo and more. It has over 110 image filters and colour adjustments, some of which are unique to Pixelitor.



Productivity is what everyone strives for, and with power comes opportunity to be more productive

Extreme Performance With The Lenovo ThinkPad X1 Extreme

Performance and portability are things that don't easily go together, but Lenovo made it possible with the ThinkPad X1 Extreme

Lenovo's new slim and stylish ThinkPad X1 Extreme will enable users to power through intensive tasks thanks to its discrete NVIDIA GeForce graphics card and the latest eight generation Intel Core processors. The lightweight portability of the ThinkPad will be appreciated by everyone, while the robust build together with strong security and privacy features translates to great reliability.

Like all ThinkPads, the X1 Extreme is tested against 12 military-grade requirements and more than 200 quality checks to ensure they run in extreme conditions. Also with Cortana Premium, you can speak commands to your X1 Extreme from across the room. The integrated 360-degree far-field microphones ensure your voice carries its weight. You can wake your device, quickly and easily find files, and even put your system into standby mode.

The X1 Extreme is rated to deliver up to 15 hours of battery life. Even when it is low on battery, the X1 Extreme is able to reach 80 percent battery capacity with around an hour of charging using rapid-charge

technology. To get more productivity to the user, the notebook support four independent monitors – making working with complex computations, day trading, or analysing big data a cinch.

Packed with features like 4K resolution, 100 percent Adobe RGB color gamut display with Dolby Vision HDR and Dolby Atmos immersive audio set the bar high

for content creation or consumption activities on the Extreme X1. To top it off, there are innovative security features like the ThinkShutter camera cover, Windows Hello facial recognition, and touch fingerprint reader. ☐

<https://www.lenovo.com/my/en/laptops/thinkpad/thinkpad-x-series/ThinkPad-X1-Extreme/p/22TP2TXX1E1>



The ThinkPad X1 Extreme hits the two P's, Power and Portability

ViewSonic®



Discover New Dimensions

with Curve Monitors for Professional, Gaming & Entertainment



Find out more at:



03 5036 0468



www.viewsonic.com/my



ViewSonicMalaysia

Scan for more info





ROG Zephyrus S Storms Into Malaysia

Two new gaming notebooks were launched, along with ROG apparel and backpacks

The end of 2018 turned out to be busier than we usually see, with ASUS deciding to do another ROG launch on the 13th December 2018. This launch saw the brand releasing two new gaming notebooks, including the Zephyrus S, and a series of new backpacks and apparel.

We first found out about the Zephyrus S a few months back when it was launched in Taiwan and now it's finally here. Like its predecessor, the Zephyrus S has impressive specs to go with a thin body. In fact, it's only about 15mm in thickness and weighs 2.1kg, which is very light for a gaming notebook. Despite that, it packs a lot of gaming performance within, housing an Intel Core i7-8750H CPU, an Nvidia GeForce GTX 1060 GPU, 16GB of DDR4 RAM, and a 512GB NVMe SSD. If that's not enough for you, it also has a 15-inch IPS display that has a response time of 3ms and refresh rate of 144Hz.

ASUS has maintained the use of the Active Aerodynamic System (AAS) so the

Zephyrus S gains more air intake when the lid is lifted. To ensure top cooling performance, the machine also has five heat pipes that help draw heat away from the CPU and GPU. Two 12V fans work to vent out the heat from the four heatsinks, while keeping clear of dust with anti-dust tunnels.

The second notebook is the Strix SCAR II, which was revealed at COMPUTEX 2018. Designed for fans of FPS in mind, the Strix SCAR II features contrasting Kevlar and camouflage textures. Its specs are similar to the Zephyrus S, sporting an Intel Core i7-8750H CPU, Nvidia GeForce GTX 1060 GPU, and 16GB of DDR4 RAM. While it has a smaller capacity 256GB NVMe SSD, it can store more files with its additional 1TB Fire Baracuda SSHD. Furthermore, it has a larger 17.3-inch display that fits into the 15.7-inch chassis and has the same 144Hz refresh rate and 3ms response time.

Finally, ROG also launched a range of apparel and backpacks. There are now two t-shirt designs called Lifestyle and

Mechanic, as well as the ROG Ranger BP2500 Gaming Backpack, ROG Ranger BP1500 Gaming Backpack and ROG 2-in-1 Backpack.

The ROG Zephyrus S and ROG Strix SCAR II will retail for RM7,999 and RM7,599 respectively. As for the t-shirts, they will cost RM109 apiece while the backpacks are priced at RM499 (2-in-1), RM279 (BP2500) and RM159 (BP1500). 

rog.asus.com



Zephyrus S

GARMIN®



INSTINCT™

RUGGED, OUTDOOR GPS WATCH



THERMAL, SHOCK, WATER
RESISTANCE
(U.S. MILITARY STANDARD 810G)



WRIST-BASED
HEART RATE



TRACBACK



COMPASS, BAROMETRIC,
ALTIMETER



BUILT IN GPS,
GLONASS & GALILEO



SMART
NOTIFICATIONS

Distributed by:



AECO TECHNOLOGIES(M) SDN. BHD.

(756522-D)

HEADQUARTERS
43, Jln Jejaka 2, Tmn Maluri,
Cheras 55100, Kuala Lumpur.
Tel: +603 9285 8062
sales@aeco.com.my

Fax: +603 9285 0162
www.aeco.com.my

MID VALLEY MEGA MALL

TK13, 3rd Floor, Mid Valley Mega Mall,
Lingkaran Syed Putra,
59200 Kuala Lumpur.
T +603 2280 0308, M +6019 233 9972

PENANG - JURU AUTO CITY

1824-G3, Jalan Perusahaan Auto City,
North South Highway, Juru Interchange,
13600 Perai, Penang.
M +6016 208 4290, +6019 233 9972

JOHOR - BUKIT INDAH

No.5, Jalan Indah 15/2,
Taman Bukit Indah,
82100, Johor Bahru, Johor.
T +607 239 5788, M +6016 208 4285

P.J - ONE UTAMA

Lot S201B, 2nd Floor,
1 Utama Shopping Centre, Bandar Utama,
47800 Petaling Jaya, Selangor.
T +603 7727 3361, M +6019 233 9972

MELAKA - 1 LAGENDA

No. 12, Jalan Legenda 1,
Taman 1 Legenda,
75400 Melaka.
T +606 288 0762, M +6019 233 9972

JOHOR - PARADIGM MALL PARKSON

Paradigm Mall Johor Bahru,
Parkson Department Store, Level 1,
Jalan Skudai, 81200 Johor Bahru, Johor.
M +6016 653 8062, +6016 208 4285

P.J - DIGITAL MALL

Lot G-01A, Ground Floor,
Digital Mall, Seksyen 14/20,
46100 Petaling Jaya, Selangor.
T +603 7958 8260, M +6019 233 9972

PAHANG - EAST COAST MALL

L1-FB04, East Coast Mall,
Jalan Putra Square 6, Putra Square,
25200 Kuantan, Pahang.
T +609 516 1649, M +6019 233 9972

SARAWAK - VIVACITY MEGAMALL

(Garmin Premium Reseller)
G-057A, Vivacity Megamall, Jalan Wan Ali,
93350 Kuching, Sarawak.
M +6016 816 1986



3rd from the Left – Hideyuki Wada (General Manager of Marketing for Sony Malaysia) and Satoru Arai (Managing Director for Sony Malaysia) flanked by Malaysia's top influencers

Introducing The New Sony WH-1000XM3

New headphones to tune out the world and immerse yourself in music

The WH-1000XM3 is Sony's latest pair of wireless headphones and on the 27th of November, they showed off the device along with a few other Malaysian celebrities and personalities. We also managed to get our hands on these prestigious headphones to review, which we've published in our Dec 2018 issue.

The headphones are designed to be an around the ear model, and comes jam packed with features that many loved with the previous iteration (WH-1000XM2) while adding and improving a few other tricks, most notably the noise cancelling capabilities of the headphones. These headphones now come with the new HD Noise Cancelling Processor QN1 that, according to Sony, is four times better than the previous processor. It is completely capable of eliminating noise such as background noises and human voices. It's also has the Dual Noise Sensor technology that utilises two microphones to pass down the sound data needed to cancel out the noise.

Yang Cheng, the Head of Video and Sound at Sony Electronics mentioned: "We

are proud to deliver the third generation of our industry-leading noise cancelling headphones. Our latest model takes noise cancelling to the next level with Sony's innovative QN1 processor to deliver only your favourite music and nothing else."

If you still wish to hear plane or train announcements when you are waiting for your ride, that is doable as well. All you'll need to do is turn on the Adaptive Sound Control feature that will automatically detect your surrounding and adjust the music accordingly. This means that you'll still be able to immerse yourself in your music, while having the ability to listen to announcements or outside noise. This is capable thanks to the SENSE ENGINE that can be customised with the Sony Headphones Connect App.

Another smart addition they've added to the headphones is the ability to talk or converse with people with your headphones on. All you need to do is place your palm over the right side of the earcup to decrease the music instantly, respond and once you take your hands off the earcup, it is back to music nirvana again.

The headphones are designed to deliver exceptional high-quality audio based on the 40mm driver unit with a Liquid Crystal Polymer (LCP) diaphragm that can handle beats and produce frequencies up to 40kHz. The new 1000XM3 is slimmer and weighs less than its predecessor. It's a marvel of engineering with the plethora of features added to it. Not only is it comfortable to use even in the long run thanks to its deeper earcups and thicker headbands, it can also last up to 30 hours. Using the USB Type-C port, you can charge the headphones for just 10 minutes and get enough battery to last for 5 hours.

The Sony WH-1000XM3 is now available to purchase from all authorised retailers or official Sony Stores, and is priced at RM1,599. It comes in two colours of Black or Platinum Silver. ☐

<https://www.sony.com.my/electronics/headband-headphones/wh-1000xm3>



The Sony WH-1000XM3 in Platinum Silver



Start New Journey with **4K HDR** GAMING MONITOR



EL2870U



EW3270U



EW277HDR

Brightness Intelligence⁺

Journey through the Amazing **4K & HDR** Games without Eye Strain

- Full lineup of HDR monitors with different size & resolution to suit you
- 1ms response time with FreeSync for ultimate gaming experience
- ▲ Brightness Intelligence Plus Technology (B.I.+) minimises Eye Strain in all light conditions

www.BenQ.com.my



where to buy



Because it matters



The ZenFone Max Pro M2 with its eye-catching Wave finish

The ASUS ZenFone Max Pro (M2) Is Here!

ASUS ends the year with a bang...for buck with their latest Zenfone Max Pro M2

ASUS Malaysia has announced the new ZenFone Max Pro (M2), a competitively priced and fully updated successor to the popular M1 model offering faster performance, even longer battery life, tougher durability and upgraded cameras. ZenFone Max Pro harnesses the epic performance of the Qualcomm Snapdragon 660 Mobile Platform to deliver smooth, responsive power.

Its massively powerful 5000mAh battery is perfect for non-stop mobile gaming or endless movies, and the phone is impeccably protected by Corning Gorilla Glass 6 at the front. The AI-powered dual-camera system with its flagship Sony main sensor captures fantastic photos every time for every subject — day or night, portraits or scenery — without the user even having to think about it. ZenFone Max Pro is an enduring and intelligent companion that's built to go the distance.

ZenFone Max Pro is the first ZenFone to use the eye-catching Wave finish — a

dynamic optical finish exquisitely created using a glossy 16-layer coating — that looks beautiful from every angle, showing an ever-changing interplay of light and shade. The 3D-curved rear design is not only comfortable to hold, but also gives ZenFone Max Pro a truly luxurious look. Even with all its new upgrades, the phone is still

superbly slim. For more connections and more storage, ZenFone Max Pro features a convenient triple-slot tray, combining dual 4G LTE SIM slots (dual SIM/dual standby) with a microSD card slot that allows storage expansion up to 2TB.

<https://www.asus.com/my/Phone/ZenFone-Max-Pro-M2/>



Zenfone Max Pro^{M2}

4GB RAM	64GB STORAGE	6GB RAM	64GB STORAGE
-------------------	------------------------	-------------------	------------------------

RM 859

LAZADA

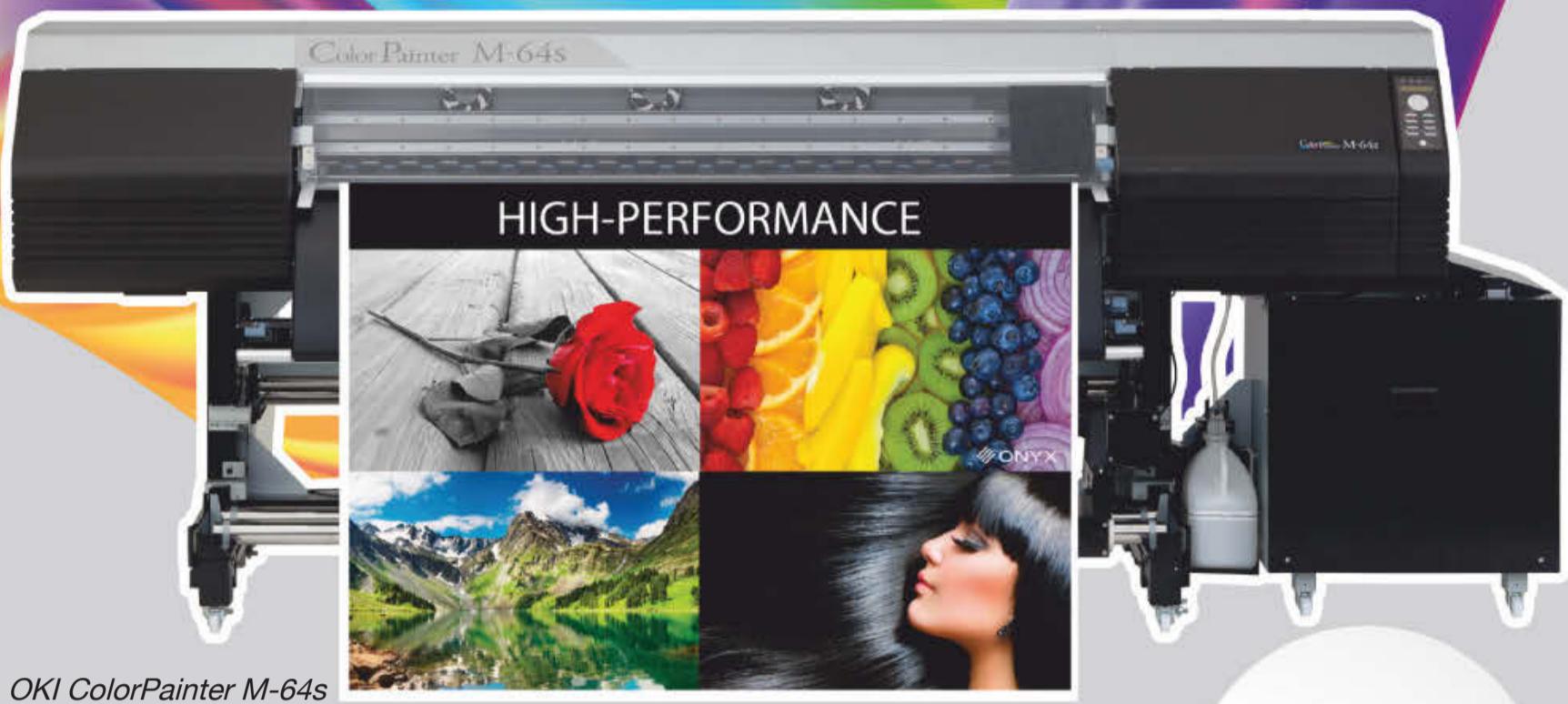
EXCLUSIVE PRE-ORDER
11 – 17 Dec

RM 999

Shopee

EXCLUSIVE PRE-ORDER
11 – 17 Dec

The pricing that was revealed during the product briefing



OKI ColorPainter M-64s



Colour Your World

The OKI ColorPainter M-64s is a mid-range high speed inkjet printer capable of wide printing 64-inch prints in six or seven colours. Designed for mid-to-high-volume print shops, the ColorPainter M-64s provides competitive advantages that equate to higher productivity and profits.

Large Capacity Ink System

High-volume printing is possible thanks to a Large Capacity Ink System designed to maximise print productivity, featuring a 4.5-liter ink reservoir for each colour making continuous high-volume printing a reality. The printer also automatically detects when ink gets low and notifies you with a warning message and a sound prompt, and to make even refills seamless, the ink reservoirs can be refilled even while printing is on-going by switching just the ink bottles.

Better Results

Using high-performance Eco Solvent SX/WX inks, users get the most out of their print. These eco-solvent inks provide highly sought after qualities like high UV stability, short drying time, and wide colour gamut with impressive black colour depth. Not only that, the inks have GREENGUARD Gold Certification for low Chemical Emissions which users and manufacturers have identified with low chemical emissions, keeping impact on air quality especially in closed environments low.

Airflow of the printer is redesigned along with the addition of a larger heater makes quick drying possible. The printer also features new print heads that realise a maximum print speed of 49.7m²/h, and with guard plates attached to the print heads adds further reliability and robustness to the ColorPainter M-64s.

High Print Quality

OKI strives not for just productivity but also quality and with technologies like Dynamic Dot Print Technology (DDP) the printer is able to provide bold and glossy colours with fine details by allowing DDP to control and optimise dot sizes creating high density printing without any loss in speed. An On-Carriage Ionizer neutralizes static electricity and eliminates static related print issues, even in a low humidity environment, allowing for less printing defects across the board.

Easy Operation

The ColorPainter M-64s includes new optical sensors that automatically perform both media advance and bi-directional position adjustment. The operator doesn't have to make complicated manual adjustments when a new media is installed or when the print mode has changed. With a new media take-up unit that offers a new loose mode, print surfaces get reduced stress and supports reliable unattended printing. The printer also comes with a new slide-out mechanism allowing users to easily load and unload media.



From left to right is Canon Marketing Malaysia, Joanne Wong, Marketing Manager of Consumer Products (CSP) Division, Andrew Koh, President and CEO and Sandy Lee, Head of CSP Division.

Canon Mini Photo Printer Hits Our Shores

Bring your printing with you wherever you go and quickly show your favourite photos from your phone instantly

Canon has announced the immediate availability of the Canon Mini Photo Printer, the smallest and lightest in its line of photo printers. It is designed to help unlock precious memories captured on a smartphone, by printing and sharing them on the go with family and friends in a matter of seconds. The Canon Mini Photo Printer aims to bring back the joy of sharing printed photos, stylishly and instantly.

The Canon Mini Photo Printer taps ZINK Zero Ink Technology from ZINK, a revolutionary dry-printing technology that enables printing in colour without the use

of ink cartridges. Revel in glossy 2x3-inch stylish photos that are smudge-proof and scratch-resistant, with a peel-and-stick reverse side that can be easily affixed to the back of smartphones, laptops, tabletops, wall mirrors, or just about any smooth surface. Additionally, you can pair the Canon Mini Photo Printer via Bluetooth to your smartphone to wirelessly print your best photos and social media snaps in a matter of seconds.

The built-in battery ensures true mobility without the need for the device to be attached to a power outlet. Combined

with its compact, slim profile, the Canon Mini Photo Printer delivers complete portability that fits easily in pockets, purses, and jackets easily. Smartphone users can capture and preserve memories or turn them into instant mementos for family and friends, at home or during travels.

The Canon Mini Photo Printer is available in Slate Grey, Rose Gold and Mint Green. Each unit includes a starter pack of ten sheets of photo paper, a charging cable, all for a retail price of RM499. <http://bit.ly/CanonMini>



From L to R – Soo Yun Sin (Senior Product Executive for Acer Malaysia) and Chan Weng Hong (General Manager of Products, Sales and Marketing for Acer Malaysia) posing with the new devices

New Acer Chromebook Spin, Veriton And TravelMate Devices

Brand-new Acer products for you to work on your office table and coffee table

Early in December, Acer launched not just one, but four new devices within their Veriton, TravelMate and Chromebook Spin series. It was just in time for Christmas, so people got the chance to maybe get one of these new devices for their loved ones.

First up, there's the Veriton N4660G, a mini PC that comes packaged with a few configurations and is modular. For example, if you require a DVD drive or a SD reader, you can purchase them from Acer and add them on yourself. And since it is a mini PC, you can either store it vertically on the provided stand, or fasten it onto the back of a monitor that is VESA mount capable with the bundled VESA mounting kit. Currently, the Veriton N4660G comes with two configurations of Intel Core i3-8100 or Intel Core i5-8500, 4GB of RAM that can be upgraded to up to 32GB, Intel UHD Graphics 630, 1TB HDD, and runs on Windows 10 Pro. An Acer USB Keyboard and Optical mouse is also packaged with the mini PC, so all you'll need is a monitor.

We were then introduced to the Veriton Z series, an All-In-One desktop setup, which means a monitor as well. This will also be available in Malaysia with two configurations of an Intel Core i3-8100 or Intel Core i5-8400. It has 4GB of DDR4 RAM right out of the box, but it can be upgraded to 32GB if you wish. For graphics, you will be relying on the Intel

UHD Graphics 630, while a 1TB HDD will store all your files. As an AIO, it comes complete with a 21.5-inch Full HD display and an integrated webcam that can be popped out of its housing when you need to use it, or tucked away when you don't, making it perfect for office conditions. To make it even sweeter, the camera can be rotated for conference calls, which is helpful if you need to present projects with your team.

Next up and probably one of the major draws for us, is a new Acer Chromebook. This time, it is the Chromebook Spin 13, and as the name suggests, it can be used in a few ways, either in Tent Mode for watching movies, or used with a keyboard just like a regular laptop. This Chromebook will also come with a Wacom stylus that allows you to draw, take notes and so on. The bottom of the keyboard has a special housing just to fit this stylus, which requires no battery to function. The Chromebook is the latest and the most powerful Chromebook in the market right now, sporting an Intel Core i5-8250U processor, 8GB of RAM and 64GB of internal storage. You will also get a 13.5-inch QHD IPS display on the device. Since it runs on Chrome OS, you'll get a plethora of apps and games. It also boasts a battery life of up to 10 hours, perfect to be brought around for a day's work.

Lastly, we have the new Acer TravelMate X3310, a device for professionals that take their work on the go. It is packaged with an Intel Core i5-8250U processor, a whopping 8GB of RAM, a 256GB M.2 SSD, and runs on Windows 10 Pro as well. It has a 13.3-inch Full HD IPS display with Acer ComfyView to reduce eye strain when you are working for long hours. Being a laptop made for professionals, it has plenty of ports, sporting a USB Type-C port, SD Card Reader, VGA port, HDMI port and LAN port as well on the sides. According to Acer, the device can last up to 15 hours on a full charge, and that should be sufficient for you to last the whole day or for a flight.

As for pricing and availability, the devices are now available to purchase from Acer authorised retailers or online. If there is a specific configuration that you wish for, simply contact Acer and they will be more than happy to accommodate you. The Acer Veriton N4660G is priced at RM2,899 and RM3,399 for the i3-8100 version and i5-8500 versions respectively, while the Acer Veriton Z4660G is priced at RM2,899 for the i3-8100 configuration, and RM3,199 for the i5-8400 configuration. The Chromebook Spin 13 retails at just RM3,599, while the TravelMate X3310 is priced at RM4,099. □

<https://www.acer.com/ac/en/US/content/home>



From L to R – Johnson Seet (Director of Consumer Business & Product of Acer Malaysia), Edmund Hoh (Product Manager of Acer Malaysia), Shirley Ying (Product Manager of Acer Malaysia), Jeffrey Lai (Senior Product Manager of Acer Malaysia), Soo Yun Sin (Senior Product Executive of Acer Malaysia) and Chan Weng Hong (General Manager of Products, Sales and Marketing of Acer Malaysia)

Acer Wraps Up 2018 With More Laptops And Monitors

Capping off a successful year with some Christmas cheer

Acer as a whole had a great 2018, with some wonderful products ranging from laptops to monitors. To finish up the 2018, they even managed to sneak in a few more products to further extend more offerings to consumers with the new Acer Swift 3, Swift 5, Aspire 5, Predator Orion 3000, Acer ED323QURA monitor, Acer ET322QK monitor and a new TravelMate X514. With that said, we'll be listing the specs of the newly announced devices, starting with the Acer Swift 3.

Acer's Swift series include laptops designed to be slim and powerful. The new Acer Swift 3 is no different. Packaged with a few configurations, it can go up to an Intel Core i7-8586U, 8GB of RAM, 512GB NVMe SSD, Intel UHD Graphics 620 or a dedicated graphics with NVIDIA MX150. The Swift 3 also features a 14-inch Full HD IPS display along with a 3,220 mAh battery to keep it powered for up to 12 hours, all packed into a slim laptop. The Swift 5 was also shown. Weighing in at only 990g, the 15.9mm thick laptop houses a 15.6-inch Full HD IPS touch display and 512GB of SSD storage. Currently, we do not have the full specs for the Swift 5, but more will be known closer to release date.

Up next, we have the Acer Aspire 5. It spots an Intel Core i5-8265U or Intel Core i7-8565U with two storage options of 1TB HDD or 1TB HDD + 128GB SSD, 4GB of RAM and NVIDIA MX150 GPU.

The display on the Aspire is slightly larger with its 15.6-inch Full HD IPS display, and it features a 3,220 mAh battery as well. The Lava Red colour variant is pretty eye-catching!

The last laptop showcased was the Acer TravelMate X514 and it also comes with a few configurations. It is powered by an Intel Core i5-8265U or an Intel Core i7-8565U processor, up to 512GB of NVME storage, 8GB of DDR4 RAM, and Intel UHD Graphics 620. This is a Windows 10 Pro machine equipped with a 14-inch Full HD IPS display with multi-touch capabilities.

Onto the monitors, the Acer ED323QURA is a 31.5-inch 2K monitor with 144Hz of refresh rate and supports AMD FreeSync. The monitor is curved and comes with plenty Acer technologies such as Acer VisionCare and BlueLight Shield to protect your eyes while using the monitor. As for the Acer ET322QK, it is a 4K monitor with 60Hz of refresh rate, but this particular model is aimed at console gamers, especially with the HDMI 2.0 and HDR Support. It is also a 31.5-inch display with 4ms of response time.

Lastly, we have the Predator Orion 3000 – the smallest brother of the Orion series. The Orion 3000 is a miniature compared to the others. Available in a few configurations as well, it features an 8th Gen Intel Core i5 or i7 processor with up to 16GB of RAM right out of the box, but it can be configured to house up to 64GB of RAM.

Storage wise, it can fit up to 3TB of HDD, 512GB of SSD and 512GB of NVMe SSD. You can still find a DVD drive on the desktop, and it can also house a NVIDIA GeForce GTX 1080 graphics card.

As we've mentioned, the Acer Swift 5 will arrive in Malaysia soon. The Acer Swift 3 is already available for RM3,599 and RM4,399 for the i5 and i7 variant respectively. As for the Acer Aspire 5, it is priced at RM2,699 for the i5 variant, and RM3,599 for the i7 variant. Both the Acer ED323QURA and Acer ET322QK are priced at RM1,499, and the Acer TravelMate X514 retails at RM4,499 (i5 + 256GB SSD), RM4,699 (i5 + 512GB SSD) or RM4,699 (i7 + 512GB SSD). Last but not least, the Predator Orion 3000 can be purchased at RM3,999 for the i5+ model, while the Core i7 variant is priced at RM5,399. Most of the announced models are available to purchase from Acer authorised stores and retailers. 

<https://www.acer.com/ac/en/US/content/home>



The Predator Orion 3000 with the new Acer ED323QURA monitor



Closer look at the DJI Osmo Pocket

DJI Osmo Pocket Announced

A pocket pal for the content creator on-the-go

DJI has announced the Osmo Pocket, a highly compact three-axis camera created for everyone. Designed to be incredibly easy to use, Osmo Pocket offers a host of intelligent features to help capture creative videos and photographs in a portable form factor. At just over 4-inches tall, Osmo Pocket is DJI's smallest three-axis stabilised camera.

It redefined DJI's family of handheld gimbals offering features never before seen in a product this compact. A 1/2.3-inch sensor records 12-megapixel photographs and 4K video up to 60fps at 100Mbps in stunning detail. Osmo Pocket also uses built-in dual microphones and advanced noise-cancelling algorithms to ensure you capture high quality audio to match your footage.

Building on DJI's experience in creating gimbal technology, Osmo Pocket helps capture stable video for all of life's moments. The state-of-the-art three-axis mechanical gimbal compensates for movements and smooths these motions so you can focus on composition and subject matter. Whether you are taking videos

of your vacation or documenting special holiday moments, Osmo Pocket helps ensure your video comes out smooth.

Designed with ease of use in mind, Osmo Pocket doesn't just let anyone shoot smooth, cinematic footage; it empowers creativity. The gimbal camera uses a 1-inch integrated touch screen that provides a high quality live view as well as the ability to toggle through the various shooting modes, adjust settings,

review footage and gain access to a full suite of creative features. A universal port under the touchscreen allows users to connect their mobile devices that use iOS Lightning or USB-C. Upon connection, the new dedicated DJI Mimo app will automatically open and serves as a monitor, while in-app menu offers a variety of intelligent features and recording modes. 

<https://www.dji.com/osmo-pocket>



When you can't carry around a camera, the Osmo Pocket will be your friend



A Maze To Remember With The Xiaomi Mi 8 Lite

Affordable, light and designed with a nice Aurora Blue colour variant

On the 6th of December, Xiaomi surprised the media with a full-sized maze filled with tidbits about its new device, the Mi 8 Lite. The event had us hunt around the maze with Mi 8 Lite as the main prize for the event. The phone is one of the latest from Xiaomi, with a focus on affordability with good looks. Who said an affordable phone needs look cheap?

First up, the design of the Mi 8 Lite is mesmerising, thanks to the gradient finish that is prominent on the Aurora Blue colour variant. It does have a notch, fitting for a 2018 device, but it comes with a massive 6.26-inch Full HD+ display with a 19:9 aspect ratio, dubbed as Full Screen Display. The phone is only 7.5mm thick as well, making it a slim device that can easily slip into your pockets without much issues.

While it is an affordable device, it does come with a decently specced Qualcomm Snapdragon 660 processor with a two configurations of 4GB RAM + 64GB internal storage or 6GB of RAM with 128GB of internal storage. Of course, you can also

upgrade the storage with a microSD card of up to 256GB microSD. Powering it is a 3,350mAh battery that can be charged via the USB Type-C connector, which supports quick charge for the device.

To unlock the device, you can use the rear fingerprint sensor or AI Face Unlock with its 24-megapixel front camera, which also delivers selfies that are bright and colourful even in low-light conditions. The front camera is even equipped with AI features such as bokeh effect and AI makeup option that'll apply retouches to your face to give the #wokeuplikethis feel. As for the rear cameras, it is a dual camera setup consisting of a 12-megapixel and 5-megapixel camera that can also utilise AI features to make your shots better.

As mentioned, the Xiaomi Mi 8 Lite comes in two configurations of 4GB + 64GB storage and 6GB + 128GB storage and they are priced at RM 999 and RM 1,299 respectively. These devices along with other Xiaomi products can be purchased from authorised Mi Stores and comes in Aurora Blue and Midnight Black. It

is worth noting that the 4GB variant can also be purchased from Xiaomi's official Lazada Flagship Store.

<https://www.mi.com/my/>



The back of the device in Aurora Blue



The front of the phone

Lenovo 2019 Tech Predictions

By Gianfranco Lanci, President and Chief Operating Officer, Lenovo



Everything around us is getting smarter, from our PCs to conference room systems. We are adapting and evolving the way we engage with our technologies – in the workplace and at home – for faster consumption and productivity, and more convenient connections. In 2019, the dawn of limitless connectivity, full automation and immersion into extended realities will inch closer than ever before, shaping the way in which humans can harness smart technologies in the time of intelligent transformation.

TECH PREDICTION #1

Everything's getting smarter, so what's missing?

Smart spaces – whether physical or digital – are these wondrous environments where humans, devices and systems interact in open, connected and efficient ways. So where are the gaps? Based on recent research, our user experience team uncovered that saving time, creating comfort and enabling authentic human connections are what people value most in their technology.

For consumers, that means a much less frustrating and time-consuming experience when setting up their smart home with devices from a slew of different manufacturers with little-to-no integration. The adoption of PCs with smarter, connected features like voice recognition, biometric authentication and always-on connectivity, alongside an emerging category of smart displays that combine sight (touchscreen displays) with sound (voice assistants) will also evolve the way we engage with technology

for faster information consumption and more convenient connections.

In the workplace, it is all about the employee experience – not simply about tech or spaces, but about culture and how the three merge together. Forward-thinking organisations will start turning their attention to the concept of transitional, mobile engagement and spaces that foster greater collaboration and human connection. These communal spaces will require tools for instant collaboration and co-creation, including smart meeting room solutions, interactive displays and more (Ref: 1).

TECH PREDICTION #2

Tech for good: How IoT, AI and AR/VR are making us happier and healthier

The adoption of Internet of Things (IoT), artificial intelligence (AI) and augmented reality/virtual reality (AR/VR) will continue to scale into different verticals from manufacturing to education, retail and more in 2019. In fact, according to a recent Accenture study (Ref: 2), 72 percent of health executives agree that extended reality will be widespread and impact virtually every industry over the next five years.

AR/VR can be used to help patients visualise procedures to reduce anxiety. VR can also provide hospitalised children (Ref: 3) with the vital distraction needed through fun, dynamic entertainment, meditation exercises and therapeutic games to cope with their hospitalisation.

In the education space, VR in the classroom (Ref: 4) allows students the chance to immerse themselves in experiences they normally wouldn't have access to, like learning about wildlife on other continents through a virtual field trip. For those students facing physical, social or cognitive disabilities, VR creates an inclusive environment and potentially even levels the playing field.

Retail is also going through a transformation, with new ways to identify and engage customers early in the shopping experience, as well as enabling customers the freedom to purchase flexibly, whether via mobile, self-checkout, online or regular checkout. The drive to unified commerce applications in retail is leading a revolution in transactional point-of-sale devices. These devices integrate with point-of-experience interfaces for customer loyalty

programs and IoT offerings to enhance retail with new technology in real-time pricing, inventory management and customer analytics.

As new advances and applications make their way into various verticals, expect to see accelerated adoption as technology costs come down and organisational and business outcomes improve.

TECH PREDICTION #3

The future of security

Humans are often times considered to be the weakest link in security. The growth of mobility with bring your own device (BYOD), remote working and the gig economy have all contributed to the security challenges companies are facing today.

AI has been touted as the pathway to protection; but as with many powerful tools, it can be used for good or for evil, as AI platforms are favored by cyber criminals too. We expect to see much more focus on machine learning to address security vulnerabilities, as well as more of a focus on end-to-end security solutions (Ref: 5) versus a patchwork collection of discrete tools. The trend from two-factor to multi-factor authentication on personal devices, for example, will continue to grow as security industry bodies like the FIDO Alliance integrate with Windows Hello to enable safer authentication.

The rise of smart devices in the home and office that are all interconnected will also introduce security vulnerabilities that will need to be addressed. A crucial aspect will be to learn from users through heuristics and new learning models addressing not just changes in technology, but also changes in human behaviors. Companies will need to understand their multi-generational workforce, to better manage and protect devices as well as develop strong security protocols and practices. □

1) solutions.lenovo.com/pc-solutions/workplace-efficiency/

2) www.accenture.com/us-en/insights/health/digital-health-tech-vision-2018

3) www.starlight.org/introducing-starlight-xperience/

4) solutions.lenovo.com/vertical-solutions/k-12-education/vr-classroom/

5) solutions.lenovo.com/pc-solutions/thinkshield/

E-Commerce Rewind 2018

Most Visited E-commerce Platforms on Desktop and Mobile Web in Malaysia and Southeast Asia in 2018

By iPrice Group

2018 has been an important year for e-commerce. According to the Minister of International Trade and Industry, Darrell Leiking, e-commerce contributed a total of RM86.5 billion in gross domestic product (GDP) in 2017 with annual growth at 12.5 percent. In addition to this, Google recently upped its predictions stating that the e-commerce sector is growing faster than expected and is slated to reap in RM426 billion in gross merchandise value (GMV) by the year 2025.

Before we wrap up the year, we conducted a study to find out who were the top players in the region, the competition and point out the most interesting developments of 2018. To derive our findings, we analysed consumer search patterns on Google and total visits on desktop and mobile web on SimilarWeb on Malaysia's top e-commerce platforms. Utilising data from SimilarWeb, we also analysed the most visited (desktop and mobile web) e-commerce companies on the regional level. E-commerce platforms featured in this study were chosen based on their performance on our study on the Map of E-commerce.

Stiff competition at the top

By analysing the total visits on desktop and mobile web garnered by each e-commerce platform, we were able to ascertain who gained the largest market share in visits for 2018. Lazada maintained its lead and commanded the largest market share of total visits at 46%. The following is Shopee and 11street at a market share of total visits at 23% and 13% respectively.

However, the Alibaba backed e-commerce received a strong challenge from Shopee who grew its total visits on desktop and mobile web by 98% between Q4 and Q1 2018. By the end of 2018, Shopee reduced Lazada's lead by 62% to become its closest competitor.

The most visited Malaysian based e-commerce platforms on desktop and mobile web were Lelong, Hermo, and

the event. This was evident as players such as Lazada organised a star-studded 11.11 Super Show to promote the event. Other players also initiated various offline and online activities to get consumers shopping.

2018 also saw the rise of the Birthday Sales, which was initiated by Lazada and followed by Shopee. In fact, the event garnered a higher interest as compared the Singles' Day sale.

Other events that garnered a high level of interest on Malaysia's top e-commerce platforms were the Hari Raya sales and the moment the Goods and Services Tax (GST) was zero-rated on 1 June.

The top five e-commerce platforms in Malaysia saw a decline in search interest on 9 May (Ref: 1) during the 14th general elections period and on Hari Raya when most consumers were offline to celebrate the occasion.

Lazada, Tokopedia, and Shopee were the most visited platforms in Southeast Asia on

desktop and mobile web

We calculated the percentage of growth of the total visits on desktop and mobile web for each company between January and November 2018. From this, we saw that 60 of the top e-commerce platforms in Southeast Asia grew its total visits on desktop and mobile web by 46% on average. This positive uptrend is mirrored by Google's report stating that the online retail sector is moving quicker than expected.

Holding the biggest market share of total visits on desktop and mobile web of the year was Lazada at 25%, Tokopedia at 16%, Shopee at 15% and Bukalapak at 11%. Lazada maintains its market-

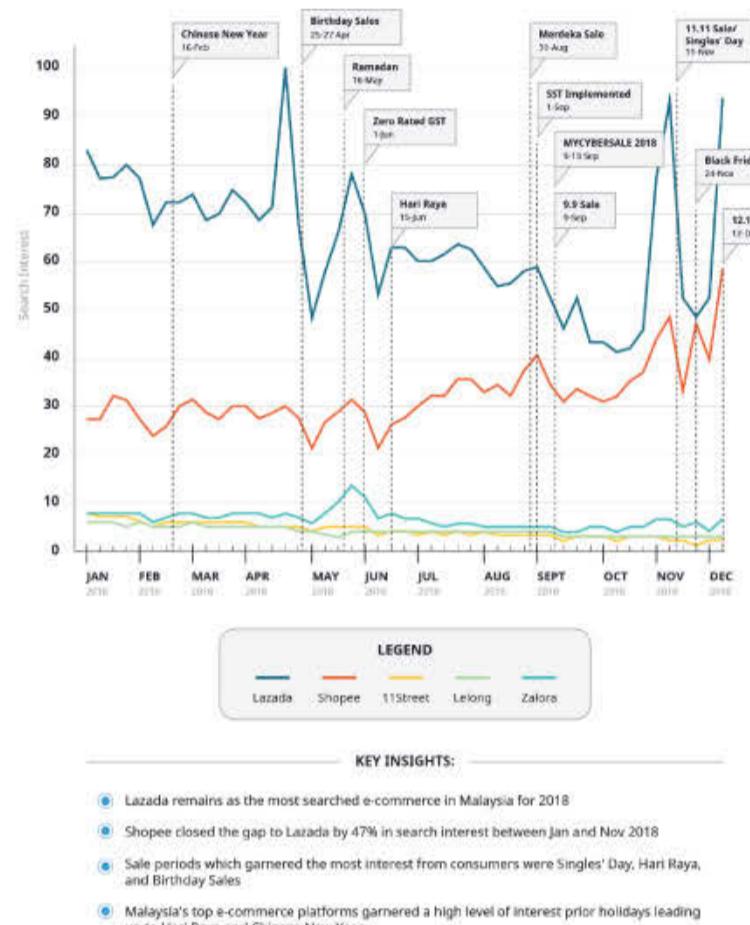


Methodology:
The top 6 e-commerce platforms in Malaysia were ranked by the total visits on desktop and mobile web. Insights based on SimilarWeb data.

iPrice
Search. Compare. Save.

SimilarWeb

E-commerce Rewind 2018: The Most Searched E-commerce Platforms in Malaysia



Methodology:
Data on the search interest was obtained with Google Trends.



leading position despite facing stiff competition from Tokopedia and Shopee throughout the year. By the end of 2018, we saw Shopee closing into Lazada to become its closest competitor. Shopee grew its total visits on desktop and mobile web to overtake Tokopedia and reduced Lazada's preeminent position by 66% by November 2018.

Indonesian and Vietnamese e-commerce platforms competing with regional players

Lazada's dominant position was almost overtaken by Tokopedia in July and August 2018. In fact, Tokopedia was able to sustain a high number of total visits on desktop and mobile web garnered from its Ramadan and Hari Raya sale campaign in May 2018. The Ramadan period was considered among the most important festive season in Indonesia. It is a popular sale period when consumers will actively purchase gifts, apparels, and decorative

able to challenge for the top spot though it was only available in Indonesia. Meanwhile, Lazada is a regional player with customers from 6 countries. Tokopedia's success received further validation as it recently raised USD 1.1 billion from Softbank in December 2018 to become Indonesia's most valuable startup, valued at about USD 7 billion.

Also remarkable in the regional level were Vietnamese e-commerce platforms Thegioididong and

items to prepare for the occasion in June. As such, it was apparent to see that both Tokopedia and Lazada experienced a dip in total visits on desktop and mobile web in June 2018 in Indonesia, as most consumers were offline during the Hari Raya celebrations.

Among the many successful efforts initiated by Tokopedia to maintain its increased total visits on desktop and mobile web after Hari Raya was with its 9th-anniversary sale, which was held in August 2019. The Indonesian e-commerce company has been particularly impressive as it was

Tiki receiving an average total visit on desktop and mobile web at 29 million and 26 million respectively in 2018. This was particularly impressive as both players are only available in the Vietnamese market.

Thegioididong (also known as Mobile World in Vietnamese) initiated its business as a brick and mortar electronics store since it was founded in 2004. Through the years, the electronics store rose to become the most prominent platform in Vietnam both online and offline. In its home country, Thegioididong overtook Lazada to become the second most visited e-commerce platform after Shopee by November 2018.

On the other hand, Tiki was popular amongst locals as well and is backed by Chinese e-commerce giant, JD.com. The e-commerce company recently received approximately USD 44 million to develop its business specifically for the Vietnamese market. □

Note: Insights are based on SimilarWeb and Google Trends data

1) <https://iprice.my/trends/insights/the-elections-in-malaysia-and-its-impact-on-the-e-commerce-industry/>

E-commerce Rewind 2018: The Most Visited E-commerce in Southeast Asia



Methodology:
The top 10 e-commerce platforms in South East Asia were determined by comparing the total visits on desktop and mobile web from 60 platforms in the region. Insights based on SimilarWeb data.



Chrome Logs In Users Automatically

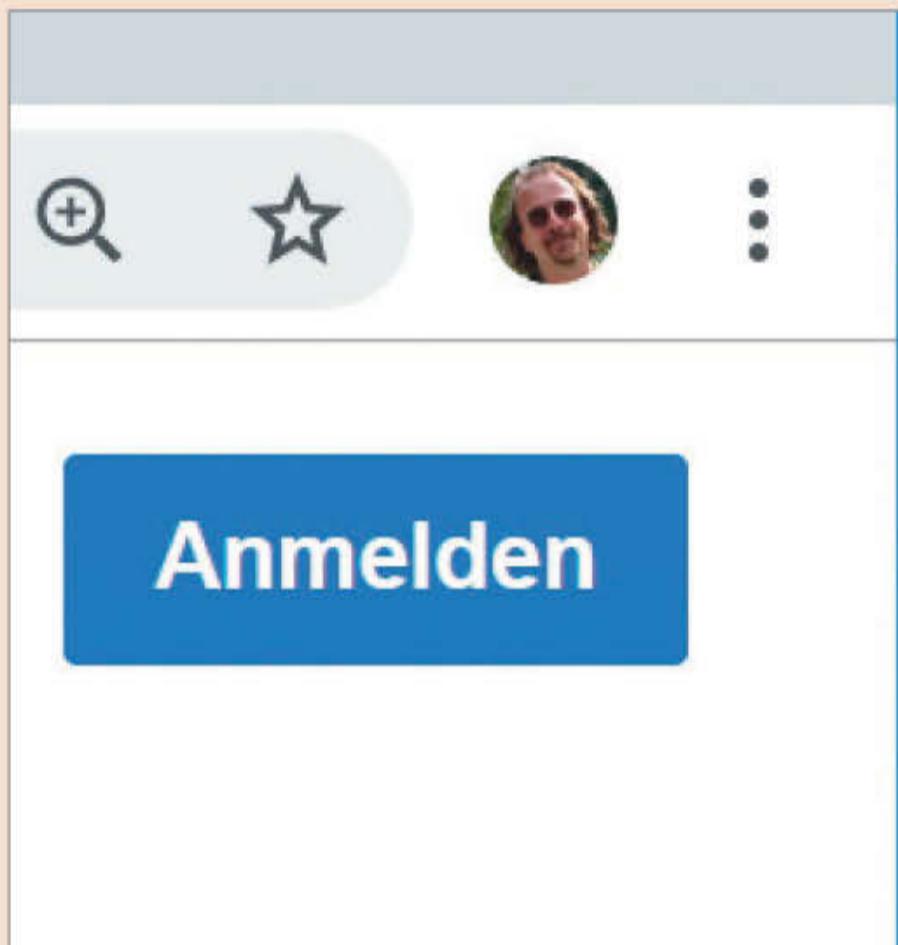
The Version 69 of the Google browser entailed several multiple changes that jeopardised the privacy of the users

Google Chrome is slowly gaining market shares even in countries that didn't favour it, such as Germany. According to ratings by StatCounter, the share of Firefox users in September 2018 in Germany has fallen to a mere 16 per cent. On the contrary, Chrome achieved around 46 per cent of market shares. Internationally, the Google browser has been on the fast track for quite some time.

For the Version 69 introduced at the beginning of September 2018, the Internet group implemented several controversial steps. In that version, users who log in to a Google service such as Gmail using Google Chrome will automatically be logged on to Chrome with their complete Google account. This can have far-reaching consequences. For example, the browser can probably unsolicitedly transfer the entire local surfing history of the user on to the Google cloud by default. This "Sync" function was already activated during a test.

Under tremendous public pressure, Google reacted to the allegations quickly and announced that it will adjust the ambiguous interface in the settings of the browser in Version 70 itself and also that it will introduce a separate option for deactivation of the automatic login.

However, these are not the only changes in Chrome 69 that have led to criticism. Version 69 also no longer deleted all authentication cookies when users want to delete them. Instead, the Google cookies remained unchanged. Even here, the group had to back-pedal and promise that it will really delete all cookies in the future when the user wants them to be deleted.



From the tiny profile picture on the top right, one can identify that Chrome 69 has already logged in the user automatically on Google



Data Theft Of The Month

FACEBOOK: 50 MILLION USER ACCOUNTS HACKED

A feature that allowed Facebook users to hide their profile from other web surfers was found to have multiple massive security loopholes, informed Mark Zuckerberg's firm. Around 50 million Facebook users are said to have been affected. As a precaution, the company has reset the access tokens used for the access for these and for another 40 million users.

GOOGLE+: 500,000 PRIVATE USER DATA FREELY ACCESSIBLE

A security loophole was discovered in Google's social network, which has allegedly affected more than half a million users. Their personal data have allegedly become freely accessible to third-party developers. Google has taken the incident as an opportunity to close the service for private users from the middle of the coming year.

A1 TELEKOM AUSTRIA: CUSTOMER DATA STOLEN

A hacker has managed to gain access to a database with customer data of the Austria telecom provider, A1 Telekom Austria. How much data was stolen is unknown. Having said this, personal information such as names and email addresses, as well as passwords of customers have allegedly been stolen. 

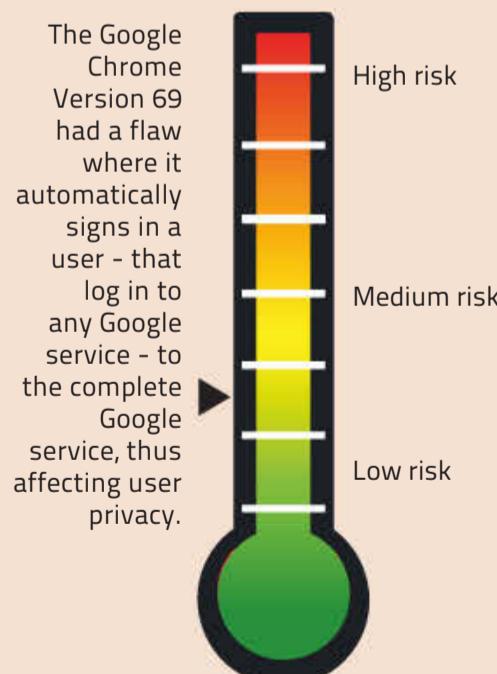
Adobe Must Publish Patches Several Times

There is no end to the security loopholes in Adobe Acrobat and Adobe Reader; the developer had to publish more security patches twice in addition to the patches appearing every month. The last packet alone ought to have plugged around 85 holes in the PDF programs, a lot of them being rated critical. ☐

GhostDNS Malware Attacks Routers

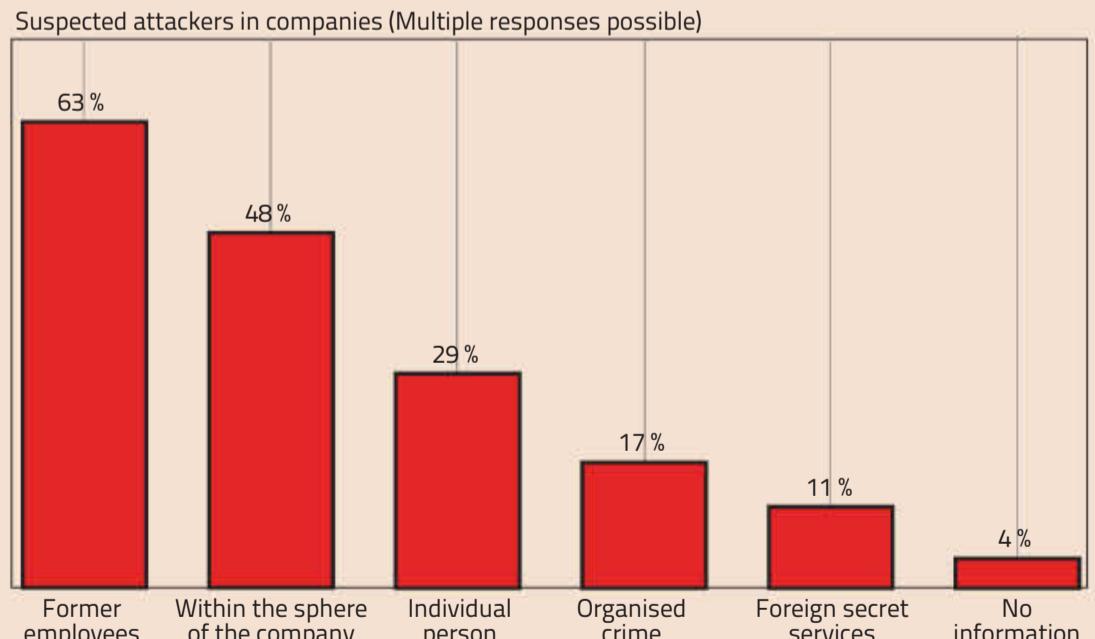
Several hundreds of thousands of routers were supposedly victims of a malware campaign planned on a massive scale. According to a report of the security company, 360 Netlab, around 70 different router models by manufacturers like Cisco, D-Link, Huawei, Siemens and Zyxel were attacked with password attacks and a script. The DNS settings of the routers were the focus of the attack, in order to be able to lure the users to counterfeit websites. 360 Netlab claimed that the focus of the attack wave so far was South America ☐

Danger Barometer



Even Hobby Hackers Are Cyber-crooks

The majority of cyber-attacks on firms can be traced back to former or current employees, but Bitkom states that even individuals and hobby hackers are responsible for every third attack. ☐



Number of the Month:

50,000,000

A Facebook featured with many critical security loopholes may have caused as many as 50 million Facebook users to be affected.

RWE Website Target Of A DDoS Attack

The website of the energy group RWE was temporarily inaccessible due to a DDoS attack (Distributed Denial of Service). It is likely that initiators of this attack were activists, who wanted to demonstrate against the disputed deforestation of the Hambach Forest. The corporate group announced that no customer data was stolen during the attack. ☐

Spyware Sniffs Out WhatsApp

The security provider G Data warns against the new spyware Buhsam, which has allegedly infected Android mobile phones. The abilities of this malware are impressive. For instance, it can spy out WhatsApp and browser history, any stored contacts, and take control of the camera of the smartphones. Moreover, the malware uses various modules depending on the context. According to findings of G Data, the latest version of Buhsam left a relatively immature impression despite of this and was probably released on the Android platform prematurely. ☐

Espionage Chips From China

According to a report by the American magazine Bloomberg Businessweek, cloud servers of Amazon and Apple allegedly have espionage chips integrated into them. The hidden semiconductors are supposed to have been mounted on to mainboards in the Chinese factories of Supermicro, which are used in the servers of the corporate groups, amongst other places. All concerned companies are contesting the accusations categorically. Both Apple and Amazon communicated that they were no longer using those mainboards. According to information of the US media, the hidden chip manipulates the remote maintenance features of the affected servers in order to steal data. It is still unclear whether the report is true. The effects are already so significant, however, that they are being compared with the revelations by Edward Snowden. For it is not just the mainboards by Supermicro but also other hardware from China that could be compromised. 

Can You Be Too Safe?

Kaspersky Lab and B2B International interviewed 6,687 respondents from companies with up to 4,999 employees, from 29 countries, working in different industries and company sizes. The interviews resulted in the Kaspersky IT Security Calculator to assist businesses in IT security budgeting. As the businesses are approaching the year end and preparing what is ahead in 2019, this tool provides a good platform for the businesses.

According to Yeo Siang Tiong, General Manager, SEA, Kaspersky Lab, IT security is often asked by the senior management and decision maker whether it is a cost centre or strategic investment, where something crucial to the business continuity in the face of growing threats, and bringing measurable benefits.

"The Kaspersky Lab Global Corporate IT Security Risks Survey, an annual study to provide an update on the state of IT security in businesses across the world, revealed that IT budgets are being squeezed on a global scale. With budgets under pressure, IT security teams are facing a real challenge, having to do more with less, while the threats continue to rise. The massive impact of WannaCry, exPetr as well as other ransomwares that are now widely targeting large organisations, would have shook the global businesses and opened many eyes to the cyberthreats that organisations may face in the world today. Businesses need to do the math on cost of proactively fighting cyberthreats versus the cost of becoming a victim," Yeo said. 

www.kaspersky.com

Cybersecurity Predictions For 2019

Recently in December 2018, cybersecurity expert Forcepoint revealed a 2019 Forcepoint Cybersecurity Predictions Report. With the help of security specialists, behavioural intelligence researchers and data scientists, the report's aim is to provide guidance for oncoming threats in the months to come, especially for organisations.

According to Raffael Marty, the Vice President of Research and Intelligence at Forcepoint mentions: "The cybersecurity industry and attackers expend efforts in a never-ending cycle of breach, reach and circumvent – a true cat-and-mouse game. We need to escape this game. Researching these predictions forces us to step back and see the overall forest among the million of trees. Cybersecurity professionals and business leaders need to adapt to changes based on the risk they represent, allowing them to free the good while still stopping the bad."

The report from Forcepoint focuses on seven areas of risk that will increase in 2019, and it explores the impact on businesses that puts their trust in cloud providers based on faith, the impact of an end-user that trusts in securing personal data just by using biometrics and the impact of cascading trust throughout a supply chain. Forcepoint conducted a survey of their customers and 94 percent mentioned when moving to a cloud, security was a major issue, 58 percent were actively looking for providers that are trustworthy and have a strong reputation for security, and 31 percent are limiting the types and amount of data they place into the cloud due to security concerns.

Forcepoint highlights seven major areas of risk in 2019 that includes:

▪ Driven to the Edge

Most consumers are now exhausted by breaches and abuse of their data, forcing organisations to introduce new privacy safeguards in their service. Solutions today must build consumer trust and that their data will not be leaked.

▪ A Collision Course to Cyber Cold War

Espionage has always been a way for countries to acquire new tech but with increased security, some had been forced to acquire it through nefarious means. Organisations will have to come up with new ways to keep intellectual property out of the hands of hackers.

▪ The Winter of AI

With AI slowly gaining cognition, does cybersecurity in terms of AI exist? If so, attackers might capitalise on the slowdown of AI funding. With algorithms and analytics now capable of piloting automobiles and so on, how far can one trust in AI?

▪ A Counterfeit Reflection

With phishing attacks still ongoing, hackers utilise tricks such as "SIM Swaps" to reduce the effectiveness of 2FA methods like text messaging for authentication. Even with biometric security, vulnerabilities can still be found within the software. 

Don't Get Nabbed By Ransomware

Ransomware is a malware that locks your devices or encrypts your files, and then tells you that you have to pay ransom to get your data back. The ransom is never cheap and there's no guarantee you'll ever get your data back. There are essentially two types of ransomware; namely, crypto ransomware that encrypt files to make them inaccessible, and blockers, which simply block a computer or other device rendering it inoperable.

A close to home large organisation in Malaysia was reported to have been a victim of ransomware and the company was asked to pay the ransom in Bitcoin, a cryptocurrency. A more severe case was when the North Carolina county government slowed to a crawl due to ransomware. The ransomware attack had forced officials in the Mecklenburg County to quarantine 48 of the 500 servers the municipal relies on for daily government operations. The hackers had asked for a USD 23,000 (approx. RM95,600) ransom, which the county manager refused to pay. This attack left county workers using paper and pen to handle tax payments, jail services, child support, and the myriad other municipal services they manage. The resulting fallout that may continue for many days or even weeks to come.

In view of the many cases of data being held hostage, Kaspersky Lab had introduced free ransomware decryptors that businesses and consumers can use. These tools are available at noransom.kaspersky.com. The website itself is easy to use: Just type the file extension, email or any other information mentioned on the locked screen, and the portal will guide the user on the method to decrypt – if available. ☐

Lancom Updates Router Firmware To WPA3

The German network specialist Lancom is one of the first manufacturers to offer the new WPA3 WLAN standard for its routers. The WPA2, previously still believed to be secure, can be neutralised through special KRACK attacks. According to the manufacturer, the new LCOS 10.20 firmware is suitable for all its latest wireless routers and access points. An upgrade is possible for some older models as well. However, in order to really use WPA3, the clients must also follow the standard. ☐

Old NSA Loophole Is A Danger To Illegal Windows Copies

Hundreds of thousands of Windows PCs across the world are supposed to still be threatened by the security loophole in the SMB1 protocol, known as EternalBlue. This vulnerability is so grave that Microsoft had published extra patches against it outside the general series, which were also valid for Windows versions that are older or even those that are no longer supported. In the meanwhile, most Windows PCs are supposed to have received the updates. According to findings from the security provider, Avira, there is a significant amount of systems that have not receive any patches. Most of these are illegal Windows licences with a deactivated update service. EternalBlue was used for a long period of time by the NSA to infiltrate secret systems. It was only under the pressure of the hacker group Shadow Brokers did the secret service report the loophole to Microsoft. Users, who do not want to or cannot patch their Windows systems, can find instructions to secure their systems under support.microsoft.com/en-us/help/2696547. ☐

Phishing Attacks Against Android Smartphones

Two security researchers from Italy and France have described in a survey how several password managers popular on Android, such as Dashlane and LastPass can be outsmarted. According to the investigation, an attacker can, for example, gain access to passwords via fields cached on websites. Even the Instant Apps technology by Google, which has been introduced only recently, can supposedly be misused in order to access third-party login data. The only solution for this is to use a new programming interface and an overhaul of the Autofill feature. ☐

Google Wants To Fight It Out

In Germany, the battle surrounding mobile payments is going into its first round. Google Pay effectively sounded the bell for this first round when it launched in June 2018 and has since aimed to quickly set up a big user base before Apple Pay launches its services in the country. In this regard, Google is cooperating with PayPal in Germany. Previously, having a credit card was a prerequisite for being able to use Google Pay. However, German users can now use their own PayPal accounts as a payment method as well, which will comfortably deduct the money from their bank accounts as requested. This particular combination is no accident. After all, the act of needing a credit card to make payments is considered to be a major obstacle, especially in Germany. Rumour has it that Apple is planning to offer this option in the future with Apple Pay, instead of using German banks' credit or debit cards as a means of payment.

In fact, there's a third comrade-in-arms that might surface soon: Samsung. The Korean company has its own mobile payment system called 'Samsung Pay'. The associated Samsung Pay app was recently translated into German in its entirety. Apart from this, the first screenshots indicate that this particular service will also allow users to use a PayPal account as a means of payment.

However, Google, Apple and Samsung have no need to fear one of their largest global competitors: Alipay.

30% of Streaming Sites' Content Will Have To Be European In The Future

The EU Parliament has decided that in the future, at least 30% of the line-ups offered by all the "audio-visual media services" in the EU will have to consist of contents that have been produced in the EU. This pertains in particular to video-on-demand platforms like Netflix, Amazon Prime Video and Maxdome. Going forward, these platforms will also be required to contribute to European productions. The same amendment to the associated EU Directive also plans to provide youths with better protection against violence, hatred, terror and harmful advertisements. The platform providers are supposed to facilitate such a mechanism by providing reporting options and promptly respond to incoming reports. Furthermore, the Directive also stipulates that advertisements may, on a daily basis, constitute just 20% of the broadcasting time lying between 0600 and 2400 hours. If nothing else, this will complicate product placements. ☐

According to Roland Palmer, Alipay's Europe head, the company (which has 700 million users) is currently only planning to expand in China's neighbourhood. This includes "South and Southeast Asia, India, Thailand or the Philippines". Despite this, the company does want to establish itself in five core areas in Germany: airports, department stores, luxury shops, drugstores and hotels. For example, Berlin's KaDeWe is on board with the plan, since many of its customers are Chinese tourists. According to Mr Palmer, Germany already has several thousand points of acceptance. However, these points of acceptance have only been designed for tourists. The service can only be used by people who have Chinese bank accounts. ☐



Apple Buys Out Music Identification Service Shazam

Shazam now belongs to Apple: After months of waiting, the iPhone manufacturer has finally received a green signal from the EU Commission and has taken over the music identification service. The EU has reviewed the plans since the beginning of the 2018 and has come to the decision that Apple's intentions would not bring competitive drawbacks for the competitors. There are also no plans to remove third-party services from Shazam. As the next step, Apple intends to make the globally popular app completely ad-free and promises an improved user experience. ☐



Tesla Model 3 Completes 100,000 Units

The start of production of Tesla Model 3 was somewhat sluggish, but the company was able to manufacture 7,400 units in the first eleven days of the 4th quarter. This in turn enabled the company to break the threshold of a total of 100,000 completed Model 3 units. This information emerged from calculations carried out by Bloomberg. However, the promised launch of the cheaper basic version of the model (which would carry a price tag of about 35,000 US Dollars) has not yet come to pass. This was supposed to be rectified by the end of the 2018. According to Forbes, Tesla sold more cars in the USA than Mercedes for the first time ever in Q3/2018. ☐

Chip Helps A Paralytic Walk Again

Researchers at the Mayo Clinic in Rochester, Minnesota have been able to use electronics to help a paralysed patient walk using his own legs. About four years ago, the man in question was involved in a snowmobile accident that turned him into a paraplegic. A plate with electrodes was grafted onto the man's spine, beneath his injury, and it was connected to a battery and an impulse generator, which the researchers calibrated to the parameters necessary for walking and standing. The patient then completed a rehabilitation programme. At the beginning, therapists moved the patient's legs externally, until he gained the ability to initiate more and more movements on his own. At the end of a 43-week training programme, he could walk the length of a football field (110 metres) without any assistance. However, he can only control his numb legs visually. The researchers do not yet know exactly how the electrodes facilitate muscle control, but one theory is that the electrodes strengthen minimally-present residual impulses. ☐



Policemen In The USA Shouldn't Make Eye Contact With iPhone X

The Russian company ElcomSoft recently warned policemen in the USA not to look at seized iPhones belonging to suspects too frequently. If someone other than the user looks at the device more than five times, they have to enter the code in order to unlock the iPhone – this could complicate investigations. For example, suspects in the USA and Germany are not obligated to incriminate themselves by revealing their passwords. However, since this particular law does not yet cover biometric access, investigators could theoretically use the owners' faces or fingerprints to unlock the iPhones, which in turn would enable them to scour the devices for evidence. Consequently, when it comes to scenarios involving face ID, no active participation by the suspect is theoretically necessary. ☐



Stopping Flight With Drones

When it comes to disruption in flights, you will usually think a noisy baby or some turbulent winds. But now, a new threat approaches in the form of drones. On 19th December 2018, flights were stopped in London Gatwick Airport. This is because two drones were spotted flying over the part of the airport where the runway is. Flights had to be postponed due to safety issues as the mechanical parts of drones are harder than birds and could pose a major threat to engines. ☐

The Bendgate Returns

Recently, one of the latest device from Apple, the iPad Pro, gained some notoriety because some users reported that their devices started to bend, just like Apple's previous controversy with the bending iPhone 6. While some devices tend to flex depending on how you hold it, some of the users even report that it is bent right out of the box.

Apple has reached out and issued a statement mentioning that they will not replace them. Senior Vice President of Hardware Engineering for Apple, Dan Riccio, mentioned that the iPad Pro has a flatness specification of up to 400 microns, so that the slight variation in bending will not affect the performance of the device.

For iPads that are still within the return policy period, those could still be replaced without much issues. Those who are trying to do so after this period might have to deal with it until Apple makes another announcement regarding the bending issue. 

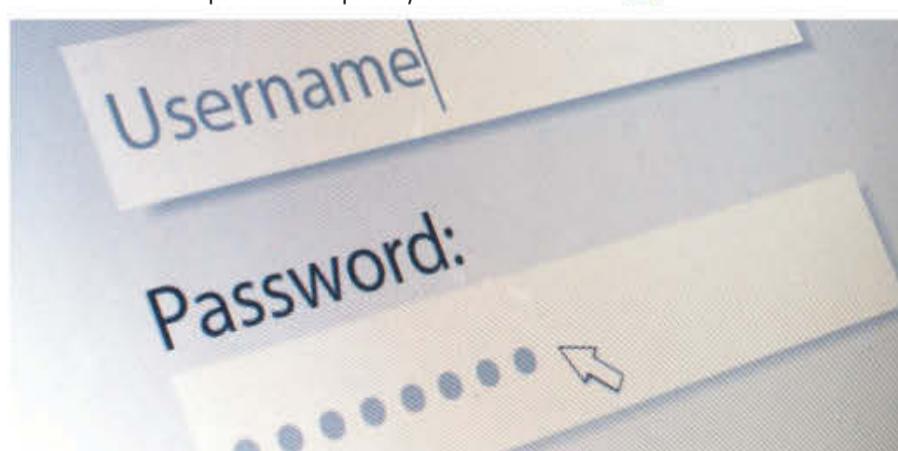


Alexa, The Digital Doctor

The US patent office has awarded Amazon a patent, which concerns the voice recognition for Alexa. The patent named "Voice-based Determination of physical and emotional Characteristics of Users" describes how Alexa is supposed to identify the health status of a user based on his/her voice. This includes unusual emotional and physical states. Whether this feature will be integrated in the near future is still unclear. It nevertheless indicates the direction in which Amazon plans to go with Alexa. 

More Security For IoT Devices In California

The Californian senate has passed a law that will prohibit standard passwords for Internet-enabled devices in the future. From 2020 onwards, manufacturers will therefore either provide one-time passwords for their devices or urge the customers to determine an individual password before starting up. The law titled "SB-327 information privacy: connected devices" also stipulates that networked devices must fulfill certain security regulations, which are appropriate for the respective function. This is a reaction of Californian politicians on hacker attacks from the year 2016. At the time, the Mirai malware infected Internet-enabled devices such as routers on a massive scale. The majority of such devices are equipped with standard passwords, which are not changed by users. Hackers thus managed to gain control over them and operated or paralysed the devices. 



Firefox Does Not Plan On Supporting RSS In The Future

In the future Mozilla Firefox version 64, the developer will stop supporting RSS (Rich Site Summary). With the deactivation of RSS, Live Bookmarks, which are bookmarks that display the contents of RSS feeds in the bookmarks list, will disappear as well. According to the Firefox developer in charge, Gijs Kruitbosch, this feature is used in merely 0.01 per cent of all browser sessions. Those who want to continue using RSS can easily do so using a browser plug-in, said Kruitbosch. Firefox 64 will appear in December 2018. 



"Atlas" Does Robot-parkour

The US firm Boston Dynamics, which often celebrates its robots online with video clips, recently published a video of its humanoid robot, "Atlas". In the video, he is seen running at full speed over a tree trunk and up a staircase with 40-centimetre high stairs - like a parkour runner. You can see the video at bit.ly/AtlasParkour. The machine, weighing 75 kilograms and with a height of 1.50 metres, performed a backflip from a standing position in an earlier video. The robot orients itself in a room with the help of a laser radar (Lidar) and stereo vision. A plethora of sensors and 28 joints help the robot balance extreme uneven patches and avoid potential falls by itself. While doing so, it retains its balance through counterbalancing arm movements as well. If "Atlas" tips ever over, it can straightens itself. 

DuckDuckGo: New Record Of Private Searches

DuckDuckGo, the search machine specialising in privacy, recently announced that a new milestone has been set for private search queries. With 30 million user entries per day, DuckDuckGo is still far behind the competition. The number of search queries accounts for only an estimated market share of 0.18 per cent – negligibly small in comparison to Google (77%), Baidu (14%) and Bing (5%). DuckDuckGo reached the milestone around ten years after its foundation, a boost that resulted from several data scandals for its competitors. 

Drop In Prices Expected For SSDs And RAM

The prices of RAMs and flash components are expected to drop drastically in the coming weeks. According to a market analysis by the DRAM eXchange, the prices in the wholesale market will sink by about 15 per cent from the current rate. Consumers, who will profit from this, will see this reduction in prices slightly later. Market researchers claim that the RAM sector is experiencing sustained overproduction. There is already a decline in the prices for NAND Flash, which is installed mainly in smartphones and SSDs. 

WhatsApp Wants To Start Displaying Ads From February 2019

The popular messenger service WhatsApp has confirmed plans of displaying advertisements in the future. A big update in February 2019 is expected to enable users to advertise their products within their status notifications. The founders of the company, who already left the company last year, are very critical of this idea. Carolyn Everson, Vice President for global marketing strategies at WhatsApp, said that no fee-based, ad-free Premium version of the popular app has been planned. 

Technilexicon: DNS over HTTPS

DNS queries for the resolution of host names in IP addresses are making use of 35-year-old technology without encryption. The new standard DNS over HTTPS upgrades it

By Jörg Geiger

Sometimes, ancient technology is used for the Internet to work. The DNS name resolution, for instance, which ensures that the domain name typed in the browser is translated into the appropriate IP address, has already been around for 35 years. Not all old ideas from that time are bad, but during the development of DNS, no one thought that it could be a problem if all these queries ran in plain text via the UDP port 853. Today, we know that there are several problems.

Reading along: Unencrypted DNS queries can be easily read on the way from the computer via the router up to the DNS servers. During Man-in-the-Middle attacks, the attackers place themselves somewhere in the query chain and record the data traffic. Since the DNS queries usually contain the full IP address of the users, DNS tracking provides perfect surfing profiles.

Manipulating: The attackers in the middle can also use Spoofing techniques in order to redirect users to fake sites. It would be imaginable, for example, for users who type the web address of their bank to receive a fake IP address as a result. The fake IP address could then lead them to a replica of the bank website and the access data could be tapped.

Blocking: This point is a specialisation of manipulation. In doing so, DNS queries can easily be blocked on a port basis, in other words, hackers, internet providers or governments can block websites.

Better: Encrypting DNS queries
The graphic on the page to the right shows how a DNS name query works.
The browsers first turn to the operating

system for DNS queries, the query then goes out to the so-called DNS resolver, which is provided by most Internet providers for most users. If this does not have the appropriate IP address in the cache, the query is passed on to name servers in the background.

The first step for more safety for domain name queries is to encrypt the communication between the computer and the DNS resolver. The upcoming standard DNS over HTTPS (DoH) takes a new approach. Instead of sending UDP queries via Port 853, DNS queries are simply passed on via HTTPS as classically encrypted web packages via Port 443. Thus, DNS queries cannot be recognised as such anymore, so a targeted blocking is no longer possible.

What's also new is that for DNS over HTTPS, the queries no longer run via Windows, but are directly encrypted from the browser or are initiated from an app. Firefox can already do this in the current version. You need a trusted DNS resolver for this to work, however. It receives the encrypted DNS queries and passes them on to the hierarchical DNS server. For tests, Mozilla has started a partnership with the provider Cloudflare.

You can try out DNS over HTTPS in Firefox; follow these steps for activation: Type "about:config" in the address bar of Firefox, click on "I am aware of the risks" and search for "network.trr". TRR is the short-form for Trusted Recursive Resolver.

Change the value of "network.trr.mode" to "2". For "network.trr.uri", you must enter a DoH server, for example, "<https://mozilla.cloudflare-dns.com/dns-query>".

You can find other trusted DNS resolver in the table to the right. While setting up, fill in the "network.trr.bootstrapAddress" field with the IP address specified in the table.

The trusted resolver has a central role anyway. Not only does it communicate with the browser in an encrypted way, but it also provides its IP address for query of the DNS name server. Even if trackers or spoofers were still active in the still unencrypted DNS backbone network, they would not be able to directly spy on the user, because individual queries disappear in the crowd.

DNS over HTTPS is controversial

Basically, the technology of DoH is a great thing, and the fact that it only took a little over a year for a finished IETF standard to practically exist demonstrates that a lot of people are convinced. However, there are also some critics who fear further centralisation of the Internet if, for example, Firefox would start switching all users to DoH and directing DNS queries via the US company Cloudflare. Mozilla explained that it works on an ecosystem with various trusted resolvers from which users can choose.

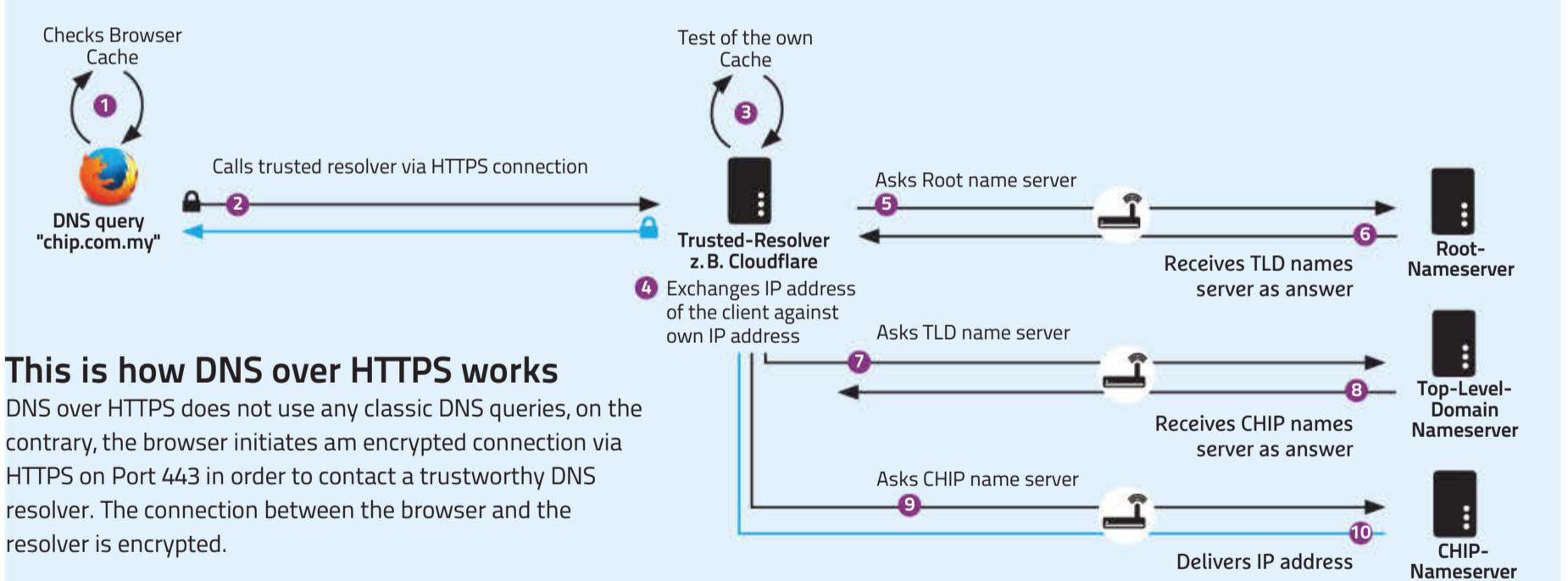
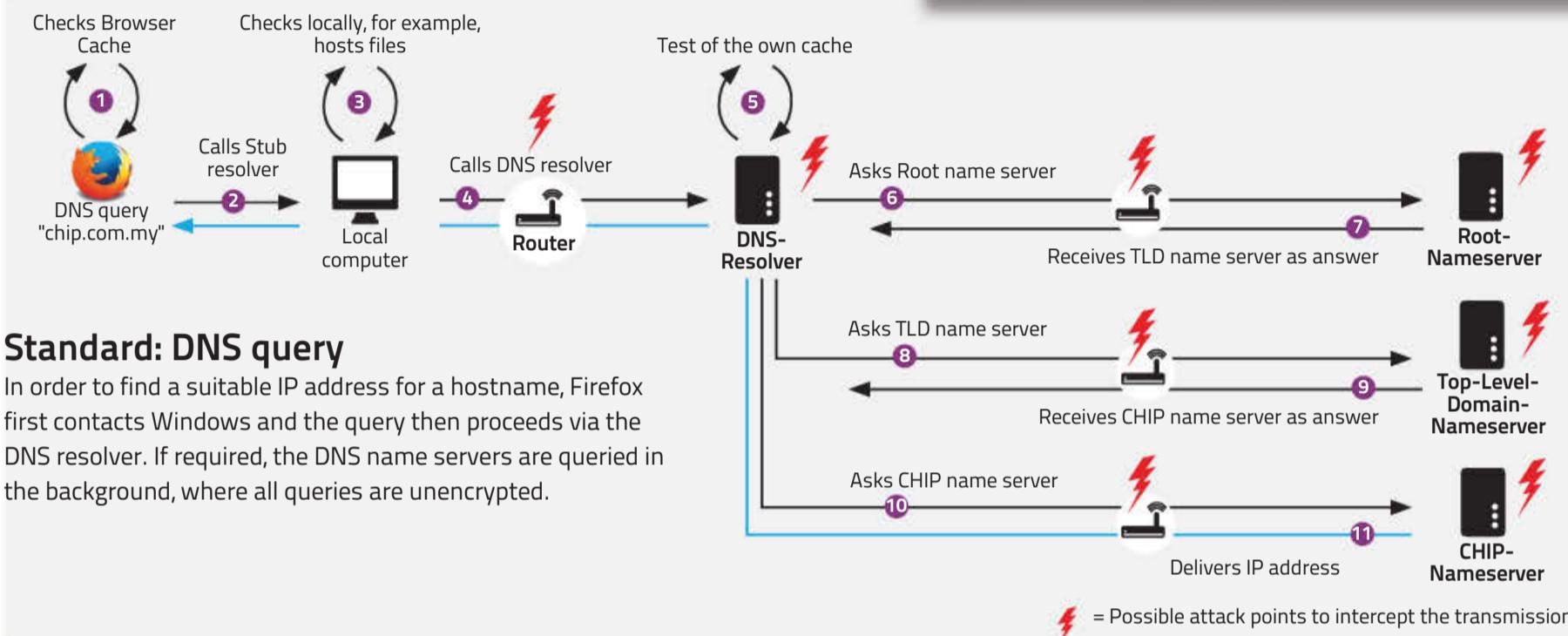
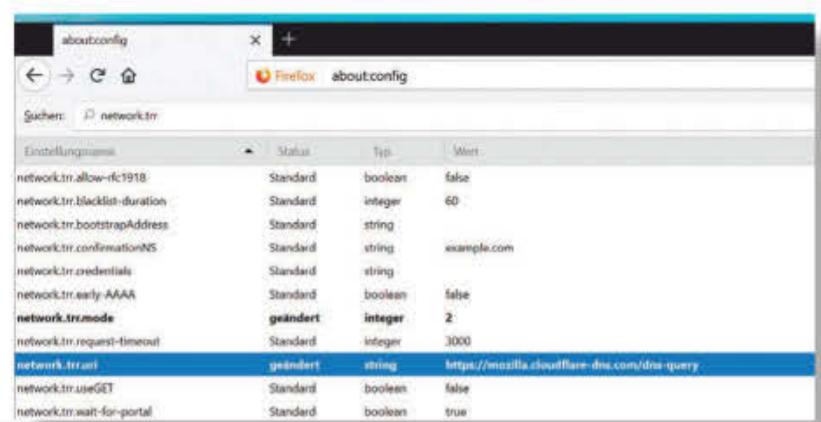
Critics of DNS over HTTPS

are apprehensive about a centralisation of DNS queries on the Internet

DNS over HTTPS is also not the only and also not the first technology, which can subsequently supply DNS encryption. DNS over TLS, for example, is also standardised at the IETF. In this case, classic DNS queries are encrypted by TLS, which in turn has to happen centrally in the operating system. Unfortunately, only Android 9 has been able to do this without additional tools until now. With DoH, each browser and each app could go its own way for the name resolution – it makes you more flexible. What we do know is that for users, domain queries via DoH would be safer, but the whole procedure also lacks transparency. It will be interesting to see who starts with DNS over HTTPS first. 

Encrypt DNS queries

Name resolution has been carried out by the operating systems so far. Browsers turn to Windows & Co. for DNS queries and the systems pass on the entered addresses in an unencrypted way. For DNS over HTTPS, browsers themselves will send encrypted requests.



	BlahDNS	Cloudflare	Cloudflare for Mozilla	Google Public DNS	SecureDNS
URL	https://doh.de.blahdns.com/dns-query	https://cloudflare-dns.com/dns-query	https://mozilla.cloudflare-dns.com/dns-query	https://dns.google.com/experimental	https://doh.securedns.eu/dns-query
IPv4 address for Bootstrap	217.61.0.97	104.16.112.25	104.16.112.25	172.217.22.14	146.185.167.43
Server location	Germany	Germany	Germany	USA	Netherlands
Content blocking	yes, advertisement and tracker	○	○	○	○
Logging	○	for 24 hours, additional permanent logs, for example, over number of calls	for 24 hours, additional permanent logs, but less than with original Cloudflare	for 24 to 28 hours, additional permanent logs, for example, over location	○
DNSSEC-Test/DNS-Leak-T exist	●/●	●/●	●/●	●/●	●/●

● yes ○ no

Try out DNS over HTTPS

In order to try out DNS over HTTPS, you need a current Firefox version and a DNS provider from the table. Enter the specified parameters in Firefox as described in the article (refer to screenshot at the top right).



Small Data For Big Benefits

Big Data, the automated analysis of large amounts of data, often leads to misjudgements. Using Small Data, a LEGO manager proved that creativity and passion are becoming more essential

By Roman Leipold

Amazing insights can be gained from huge amounts of data using Big Data, but they shouldn't be taken seriously all the time. The divorce rate per thousand inhabitants in Maine correlates to 99.26 per cent of US butter consumption per capita. However, the current US government will not consider the idea of limiting the consumption of butter. The automated analysis of large amounts of data offers enormous benefits, though contrary to popular belief, Big Data is not a one size fits all approach. Of course, there are examples like the medical sector, where Big Data can provide individual therapy recommendations for each patient, which are compiled from millions of documented cases of illness.

Big Data was never uncontroversial, but counter-movements have now formed. Brand expert Martin Lindstrom, in particular, has earned

a reputation as a critic of the misguided faith in the belief of data. As a typical branding expert, the Dane has coined a nice name for his alternative concept: Small Data.

Some Big Data issues are obvious. For example, the ability to scan unstructured datasets has only been made possible by the revolutionary big data analyses. But not all imprecisions are corrected, which inevitably leads to loss of information. However, these deficits are accepted because a quick glance at the major trend is often more important than the rigorous precision claim of typical SQL databases.

Even the rejection of causality through Big Data deserves a critical eye. The algorithms lay bare patterns and correlations in the datasets. Such as "Smart people like to nibble on curled potato chips."

Phenomenal information. But that's what a Big Data analysis might conclude, leading to the question of why it still remains. Nonetheless, Big Data also answers questions that were not asked – such as the consumption of butter and marriages in the US.

The founding myth of Small Data is the story of how Martin Lindstrom saved the LEGO Group. On the verge of bankruptcy in the mid-2000s, all Big Data analyses arrived at the same conclusion: It claimed that future generations will lose interest and patience for LEGO, and that excessive consumption of computer games will make fantasy and creativity disappear. According to Lindstrom, each data study showed that no building block could compete with the need for immediate gratification.

Pride and passion overpower Big Data

Lindstrom still relied on his Small Data method: The collection of a small data treasure and the quest of the Why. Like an ethnologist, he paid a visit to a LEGO fan. The eleven-year-old German was "incidentally" also a passionate skateboarder. When asked what he was proud of, he pointed towards a pair of tattered trainers. They were his trophy that showed everyone what he was capable of on the board.

All of a sudden, all Big Data predictions seemed unfounded. Through Small Data analysis, the LEGO people realised that children gain social recognition by pursuing an activity to perfection. That day, it became clear that everything they knew about digital natives was wrong. Lindstrom stated: "From that point on, LEGO again focused on its core product and even went one step further. Apart from redesigning the blocks in their original size, more and smaller parts in the boxes were added. The components became more detailed, the instructions more demanding, the building projects more arduous."

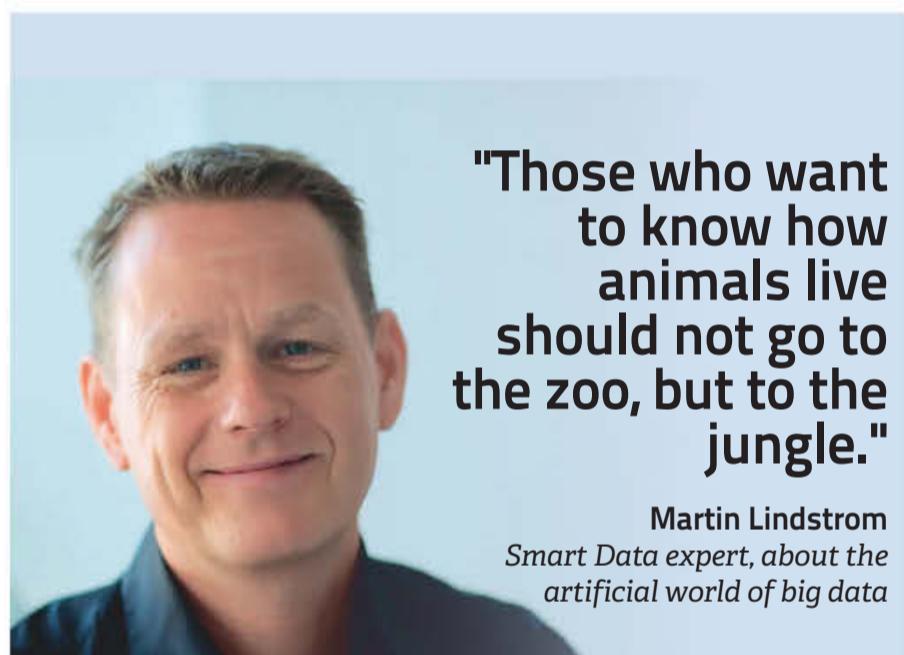
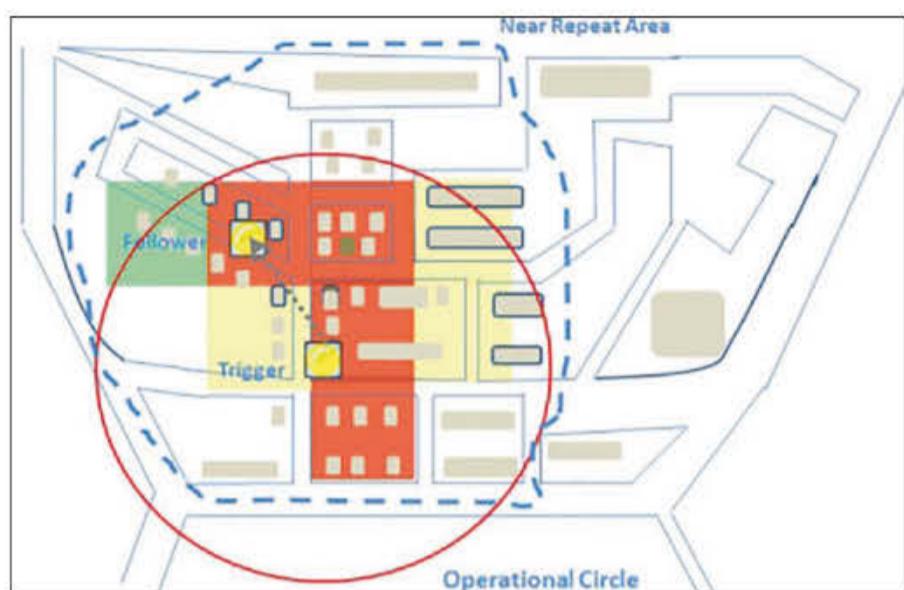
Today, LEGO is the world's largest toy manufacturer. And Lindstrom has earned a lot of praise worldwide. Since the first time, he has visited, observed and interviewed thousands of people in their homes in 77 countries. He sometimes also moves in with them. He eats with them, listens to their music, watches TV with them. He opens drawers, looks in the fridge, inspects the garbage. In his book "Small Data", he wrote: "In a transparent, overpopulated world, where we reveal our innermost secrets online, privacy and exclusivity become the greatest luxuries ever."

Lindström described himself as a forensic technician specialising in Small Data or emotional DNA – something like a longing hunter. "We want to have what we believe we are missing out on – regardless of whether that is a place, a person, a thing or a phase of life."

Small Data can of course also be operated with pure data without human intervention. This requires a structured, manageable dataset and a clear problem that allows for a causal conclusion. Especially small companies have started to trust this plausibility of Small Data more and more. This emotion-driven approach finds its equivalent even in a major data pioneer like Amazon. Since the company also runs its own retail stores, Amazon now aims to find out what its customers have in their minds – a mindset that completely follows the spirit of Lindstrom. In the Forbes magazine, business professor and renowned Amazon expert, Howard Yu, wrote that the shops served as a door opener to Small Data. "The stores are not just sales channels, they're research laboratories," he stated. ☐

Big Data: A glance into the future

Statements can be made about the future with predictive analytics. If it works like the Precobs police software used in many federal states, which is used to predict crime scenes, misjudgements can create a fatal self-momentum.



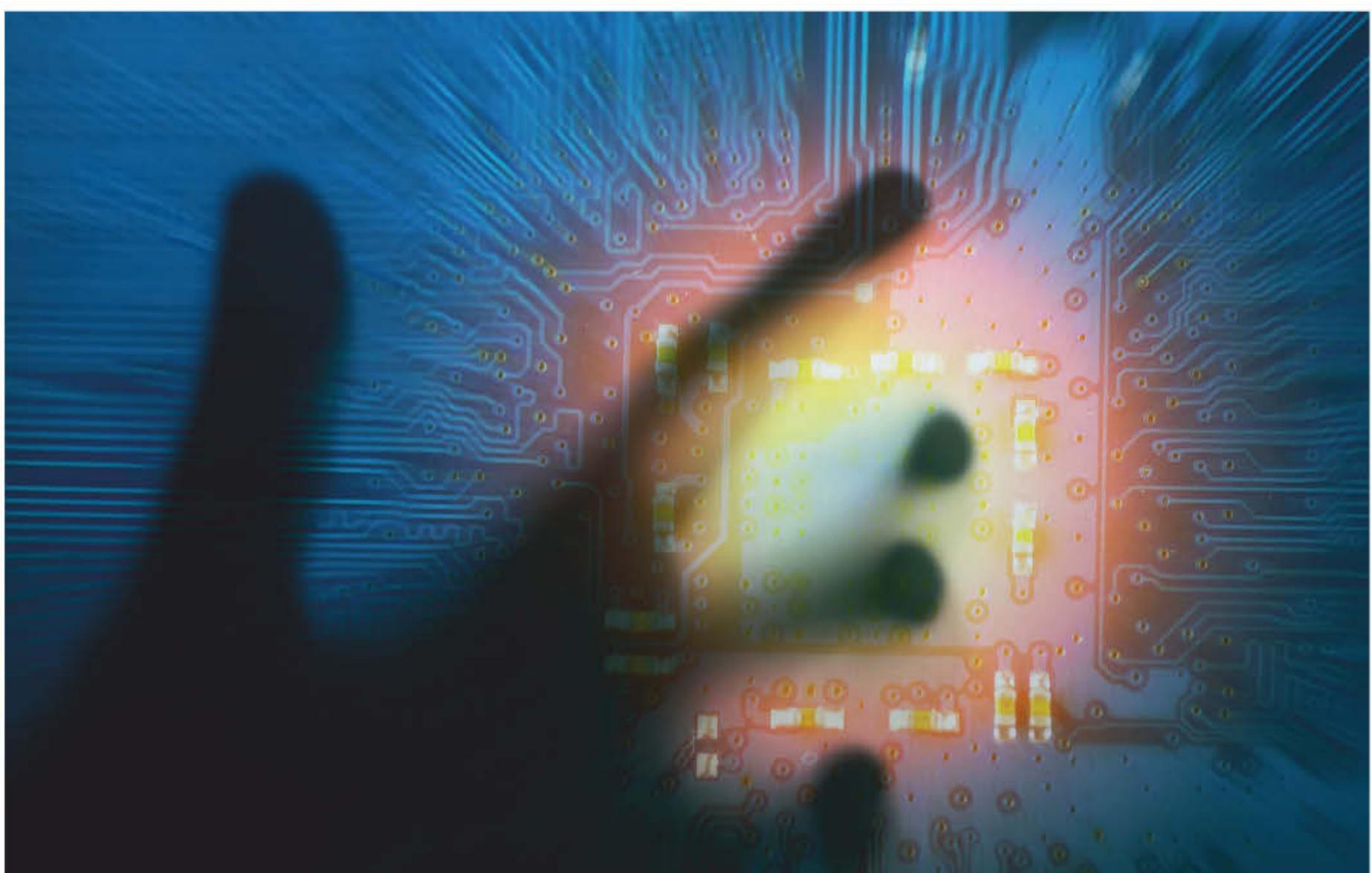
"Those who want to know how animals live should not go to the zoo, but to the jungle."

Martin Lindstrom
Smart Data expert, about the artificial world of big data



Amazon's research laboratory for Small Data

After taking over the Wholefoods retail chain, Amazon wants to use Smart Data methods to find out what really matters for the visitors of the stores



The Big Hack

Chinese agencies are said to have smuggled tiny spy chips into US servers. That would be a scandal. But there is an increasing number of discrepancies in the stories. What is the truth?

By Felix Knoke

The speculations about the Chinese spy chips are growing exponentially. An article by Bloomberg Businessweek on 4th October 2018 described how China allegedly infiltrated dozens of US companies using a tiny chip, a news that caught the breath of the tech world. With the help of 17 anonymous sources, the magazine reconstructed how, with a mixture of threats and bribery, the agencies of the Chinese People's Liberation Army supplier companies of the US server manufacturer Super Micro Computer Inc. in China and Taiwan led the placing of electronic backdoors in the server boards: mere rice grain-sized chips, which were disguised as harmless components or were hidden between the circuit board layers (see image above on the right).

17 anonymous sources, thin on evidence

In the last two years, such bugged servers have apparently made their way into close to 30 US companies, service providers in public sector, the military and other US security services. This scam is said to have first leaked out in 2015 after Apple and Amazon discovered the bugs

during routine investigations and are supposed to have engaged the services of the FBI.

The official determinations have not been concluded till date. Only this much is clear: The bugged chips are supposedly linked to the Baseboard Management Controller (BMC), a remote maintenance access, using which defective and disconnected servers can be supplied or can be maintained with new software. The hackers managed to get access to network sources and the system memory. In concrete terms, it could be used to download vicious firmware from such a hacked Supermicro server and to install it secretly or to weaken the password protection. After discovery, Apple has supposedly removed around 7,000 servers by Supermicro from the computing centre and has cancelled an order of 30,000 servers. The chip attracted attention at Amazon during a company takeover of Elemental Technologies. A presumably affected computing centre in China was supposedly suddenly on sale.

Unfortunately, the mentioned article does not go into much detail technically. Though the authors of still 17 sources in companies and

authorities are referred to, they remain unnamed. Yet their article struck like a bomb.

That countries make use of security loopholes or manufacturers are coerced into opening backdoors is a given. But infiltrating entire supply chains, in order to spy on or sabotage foreign companies and federal authorities on a large scale – that would be a whole new level altogether. This does not just concern a simple hack, but an assault on the technical infrastructure and the trustworthiness of an entire branch. And at least for Super Micro Computer, it concerns its very existence. After this became known, the company's shares dropped by almost fifteen percent to an all-time low and have not recovered since then. The "25 Years of Growth and Innovation", as written on the website, could be destroyed by one newspaper article. Not even powerful denial can help in this case.

Who is in the right? Speculations around the truth

With unusual vehemence and clarity, Amazon, Apple and Supermicro have disclaimed any knowledge and have contested the bases of the articles almost aggressively. "We do not know anything, we are not cooperating with the FBI, and do not know any of the stories as told by Bloomberg, not conclusively." In a brief to the US congress, Apple's Vice President for Information Security, George Stathakopoulos clearly declared that the Bloomberg report is "not true". "Lastly, our internal investigations directly contradict each consequent allegation in the article," he said. He claims that Apple has never discovered bugged chips, hardware manipulations or deliberately placed security loopholes in its servers; neither has the FBI been notified nor has the company ever been contacted by the FBI regarding this. Even the National Security Agency, itself an expert in refined hardware hacks, as we all know since the Snowden revelations, demonstrated ignorance. "We are befuddled," said a NSA advisor for IT security strategies. If anyone has firsthand knowledge, they should please turn to their authorities.

So who is in the right? A discussion has quickly spread out in social media and across tech sites about the manageability and the reasonableness of such an espionage attack. Much of it is pure speculation; the technically lacking Bloomberg article does not reveal more. But a lot of it has fundamental validity. Such a hardware hack is extremely elaborate, expensive and, once discovered, quickly neutralised. The culprit can be identified easily and this is not at all enough to manipulate individual servers in a computing centre. Regardless of how small the espionage chip is, it changes network currents, which is caught at the latest by the computer centre's firewall. In general, there are much easier, more secure and more direct ways to crack into the hardware. Between 2013 and 2014, Super Micro servers were even proven to have gaping security holes. A security researcher of the University of Michigan had judged then that it must be "either incompetence or indifference to the safety of the customer".

Bloomberg reiterated its report and one week later added fuel to the fire. Another big US telecommunications company is alleged to have discovered manipulated Supermicro hardware and removed it in August. Perhaps the story is not truly conclusive because it is a lot more complex than what is known. This theory has supposedly been drawn from the masterly computer worm Stuxnet, whose true abilities and purposes were only identified months after its discovery. ☐



The spy in my server

The Bloomberg article shows a B1DRI motherboard by Supermicro. The bug lies here between the BMC chip and the SPI Bus. But it is unclear whether this is only an illustration

Computer centre from the modular kit

Supermicro offers ready-made server blades with B1DRI, but also makes custom-made products on demand

No hardware is secure

Even the NSA uses hardware hacks. This monitor cable encodes the red signal into a radar echo, which is read remotely



Failures, Mishaps And Slip-ups From Redmond

The new Windows 10 Update isn't exactly a grand success. It contains detail improvements, but no has no significant new functions and is overshadowed by an annoying defect

By Andreas Th. Fisher

Microsoft releases a large-scale update for Windows 10 twice a year, and that time of the year is now upon us once again: The new version 1809 contains a handful of new functions, such as the long-promised cloud clipboard and a Dark Mode for the Windows Explorer. The new clipboard isn't exactly uncontroversial either, because the Microsoft cloud is used to automatically synchronise its contents across all the devices that are being used under the umbrella of the Microsoft account in question. However, the basic idea isn't all that bad. Microsoft has introduced a history function for the clipboard, which enables Windows users to call up content that have been copied onto the clipboard at an earlier stage. In the past, this could only be done using third-party tools. The new "Clipboard history" function can be activated using the "Start | Settings | System | Clipboard" option. The data is only transferred to the cloud after the user clicks on the "Log in" option, which can be found under the "Synchronise across all devices" option. For example, this allows you to use your smartphone to recall URLs that have been

copied onto the computer. Of course, the whole thing can become somewhat awkward if several users are using the same Microsoft account. For example, imagine a scenario where a family happens to be using a notebook at home. In such a case, all the participating users would be able to use their smartphones to view the clipboard's entries.

Permanent clipboard

Once the new history function has been set up, it becomes quite easy to use. All you have to do is access a document and click the spot at which you want to paste something from the clipboard. Now, use the new [Windows] + [V] key combination, and select the desired contents from the window that appears. If you click the little pin associated with a particular entry, the contents in question will remain present on the clipboard even after the computer has been restarted.

As is the case with just about every half-yearly Windows 10 update, Microsoft has once again fine-tuned the security settings.

Due to this new update, the "Windows Defender Security Center" is now simply "Windows security". However, the options that are available under this section haven't really changed too much with regard to the interface. Nevertheless, the new version does feature a new series of minor improvements. For example, the "Controlled folder access" function now displays a list of the applications that have recently been blocked. This makes it easier to make adjustments. Other changes – such as the new "Current threats" overview – are somewhat cosmetic. Furthermore, this particular overview is hidden in a manner that ensures that users won't really access it on a regular basis.

The new "Your smartphone" app now connects a smartphone directly to Windows. Pictures that have recently been taken using an Android mobile phone can thus be made available on the PC quickly. Thanks to that, the cumbersome task of sending the images to yourself (e.g. via e-mail) is no longer necessary. The big desktop can now also be used to read and compose SMS messages. However, you will only be able to use this function if you have a smartphone that is equipped with (at the very least) Android 7.0. Users who are using iOS will only be able to use a curtailed form of this particular function. For iOS, it is currently only possible to send links to websites to yourself, so that you will be able to continue web browsing using the big screen. You will only be able to use the "Your smartphone" function if you have a live account that establishes a link between the PC and the mobile phone.

Expanded Dark Mode and new screenshot tool

The Dark Mode in Windows 10 isn't exactly a new feature per se. However, it has, for the first time, now become available for Windows Explorer. As before, the Dark Mode can be activated using the "Start | Settings | Personalisation | Colours" option. Furthermore, the "Snipping Tool" screenshot programme that was contained in older versions of Windows 10 has now been replaced with the new "Cut and replace" tool. This tool can be launched using either the start menu or the [Windows] + [Shift] + [S] key combination. You can then select the area that you want to acquire. As is the case with a smartphone, a clickable preview will shortly appear in the bottom right section.

However, Microsoft has not been able to complete all the functions that had been planned for version 1809. The new sets that were announced a while ago have thus been postponed once again. When these new sets eventually appear, it will become possible to use tabs in Windows Explorer and other UWP-capable (Universal Windows Platform) functions.

It should also be noted that the first release of Windows 1809 contained a severe defect that caused all the personal data associated with a chunk of users ended up being deleted. The defect was so serious that Microsoft temporarily stopped supplying the new version. At the time at which this issue went to press, the bug's cause had been found and eliminated, and the process of supplying the update was slowly restarted. Except for isolated audio-related problems, no serious defects have been announced in the recent past. You can therefore go ahead and use Windows Update to download the new version. However, if you want to play it safe, you should wait for a few more weeks before you update your system. ☐

Clipboard

To use it, simply press Win + V keyboard shortcut assigned to bring up Clipboard history board

Last synced at 11:52 PM

Expanded clipboard

Going forward, Windows 10 will save more than just a single entry in the "Clipboard history"; in fact, it will even be able to retain the saved data after a reboot operation

Controlled folder access

If Controlled folder access has blocked an app you trust, you can add it as an allowed app. This allows the app to make changes to protected folders.

+ Add an allowed app

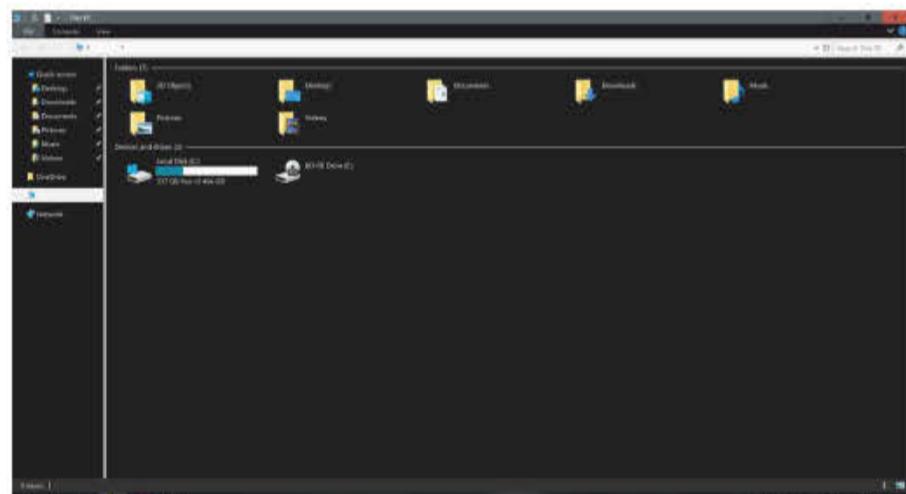
Recently blocked apps Allowed by Controlled folder access. Add them here. Apps friendly are always allowed.

Mc McAfee Control Center allowed by Controlled folder access. Microsoft Edge allowed by Controlled folder access.

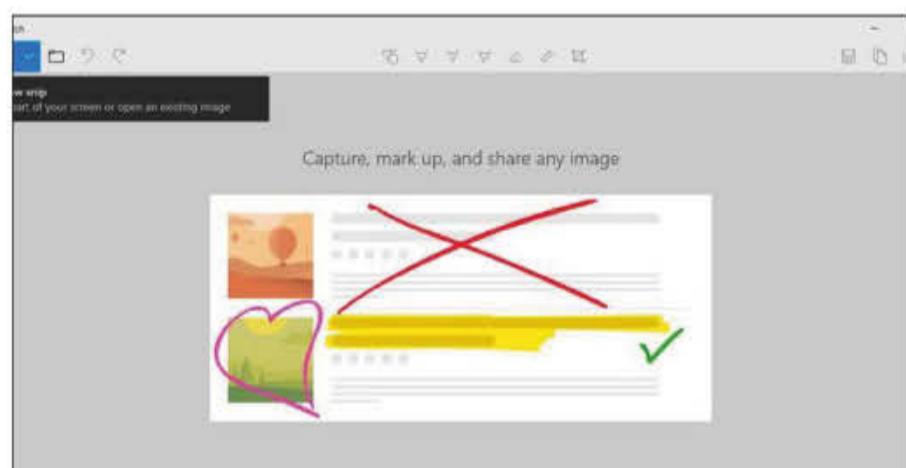
Help improve Windows Security
Give us feedback

Change your privacy settings
View and change privacy settings for your Windows 10 device.
Privacy settings
Privacy dashboard

It will now be easier for those using the "Controlled folder access" security function to configure the anti-ransomware protection



The previously-available "Dark Mode" of Windows 10 now also covers the Windows Explorer



The new "Cut and replace" screenshot programme is supposed to replace the previous Snipping Tool



Smartphone Backup Easy And Secure

Those who want to create complete local backups of Google Android and Apple iOS must bypass the system locks and use special tools. CHIP tells you how

By Fabian Von Keudell

According to the security company Lookout, 113 smartphones are lost or stolen every minute. Backups have become a standard, something that Google and Apple also pay heed to. During setup, both systems will ask their users whether they want the automatic backups of their devices. But there are several issues. First of all, the entire backup, including personal photos and contact data, is stored on the cloud servers of the manufacturers. Secondly, the company has complete access to the data. Third, the manufacturers do not secure everything; apps are excluded from the backup. For that, Google & Co. rely on their respective app store. After restoration, the

devices automatically download the missing apps. But it is only valid if the apps are still available and not deleted by the app store operator.

It's better to store the backups of apps and data locally. In this article, we'll talk about how you can create your backups and secure the entire device including the apps.

BACKUPS FOR ANDROID DEVICES

Normally, Google is known for its open Android system but when it comes to backups, the users must first circumvent device locks and use in-house software.

Deleting the Google cloud backup

Before you create a local backup, disable the Google backup and delete the backup from the cloud. This way, neither the Google Group, governments, nor the secret service will have access to your data backup. On the Android device, go to "Settings | System | Backup & Reset" and select the "Save on Google Drive" option. Disable the toggle here. Now, you must also delete the existing backup directly on Google. To do that, go to drive.google.com; there, select the desired Android device under "Backups" and press "Delete backup copy".

Comfortably backup the user data offline

Firstly, install the program Helium (helium-backup.en.softonic.com) on your desktop PC and then the associated app on the Android device. You must then activate the connection via USB debugging in the developer settings. To do that, go to "Settings | Info | Software information | More" and tap on "Build number" several times. You will find the button on different locations depending on your device. In most of the cases, it is hidden in the settings for the software information.

If you have activated the developer functions, navigate to the "Settings" to "Developer options" and activate "USB debugging". In the next step, open the Helium application on the desktop PC and start the Android app on the smartphone. Now, you can make a backup of all the user data locally – all without Google's help. If you want to completely secure apps, you must go a step further and unlock the device at the system level.

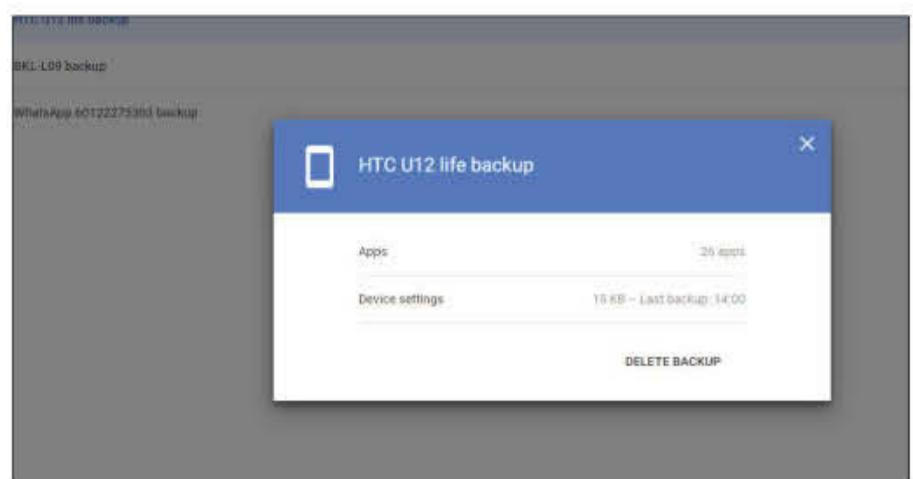
Complete backup only with root rights

A backup of an entire smartphone's content, including user data and apps, is possible on Android only with root rights. For most devices, this process is simple enough through the use of apps. For others, you might have to load specially configured software on the device via USB cable instead. The procedure differs a lot depending on the manufacturer, so just keep a few things in mind. Firstly, check the current root status, especially since many Asian manufacturers deliver devices in an unlocked state. To do that, use the Root Checker Basic app, which is available on Google Play. If the device is still locked, the KingRoot (kingroot.net) program will also help. When it comes to some models, you can also completely unlock the device via app. For all other cases, go to the website of the Team Wind Recovery Project (twrp.me/Devices). There, you will file unlocking instructions for many devices.

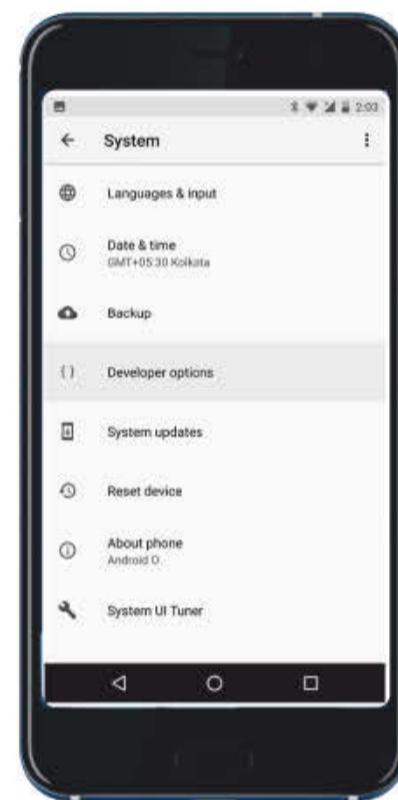
Once the smartphone is unlocked, you can take a backup of the entire system without any problems. To do that, use Titanium Backup (Google PlayStore), for instance. This free software secures all the settings and apps, while letting you view not just the normal system sections but also the options hidden deep in the Android OS, if the device is rooted. So, there is nothing that will stop a complete backup.

BACKUPS FOR IOS SMARTPHONES

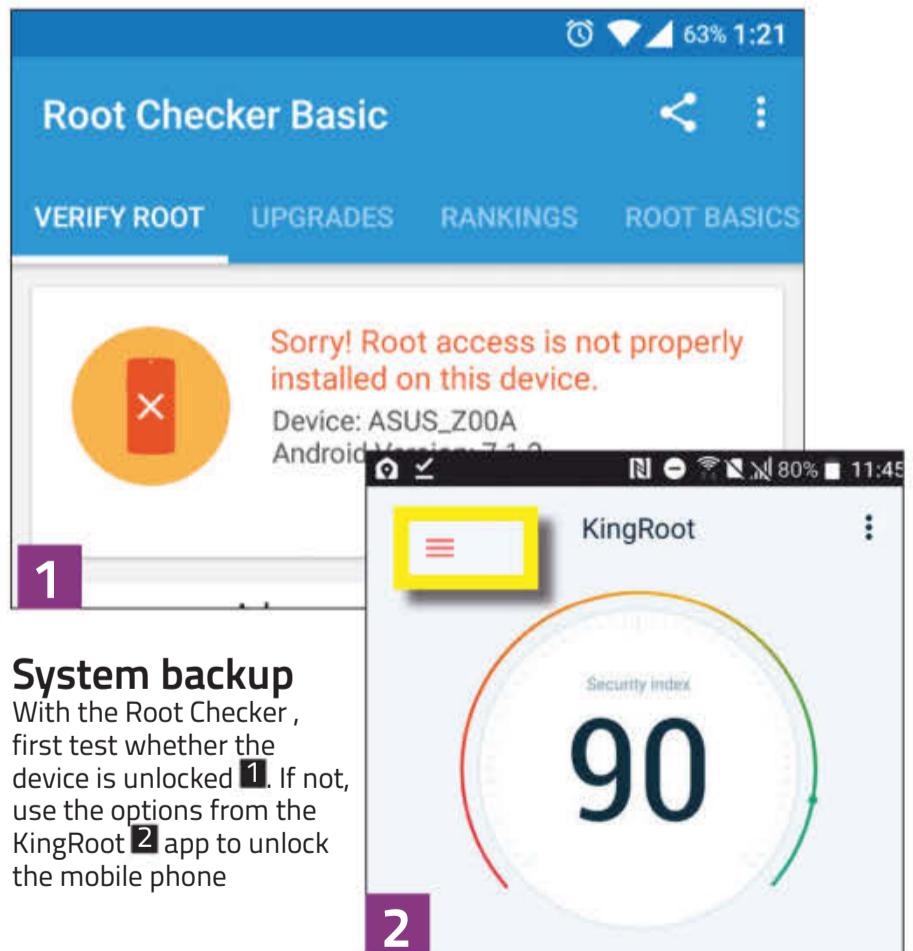
Complete local backups are possible on iOS only with correct settings and the suitable software. Also, app backups are possible only with special tools.



Cloud backups must be manually deleted from Google. Otherwise, your data will remain on the servers of the company



In the "Developer options" menu, activate the required USB connection for the backup program



System backup
With the Root Checker, first test whether the device is unlocked 1. If not, use the options from the KingRoot 2 app to unlock the mobile phone



iPhone storage

With the storage of iBridge by Leef **1**, you can create a local backup of your photos and contacts **2** and protect it via password



The apps deleted from the Apple store can no longer be downloaded. The devices do not comment about the deletion directly but report an error instead

The backup-of-everything for Apple devices

Basically, Apple takes a backup of the content of iPhones automatically on the internal cloud. So that the mobile data is not used in the process, the function starts only when the device is connected with a WiFi network and is being charged. That in itself is a good variant, if important data were not missing in the backup. Specifically, passwords and app data, classified as secure, are not included in the backup. This works only as a local backup on the home computer. Apart from that, the cloud model also has a disadvantage where Apple has the encryption keys for the backup. If called into question, the US secret services or prosecution authorities could decipher and view the backup.

In order to switch to a local, encrypted complete backup, first disable the cloud backup. To do that, go to "Settings" and click on your Apple ID. In the next menu, select "iCloud | iCloud backup" and disable the backup option with the toggle. Now, go to the desktop computer and install iTunes on the PC, then switch on your device. Next, click on the small iPhone symbol on the top left. Then select the "This Computer" and "Encrypt iPhone backup" options in the "Backup" section. After you have decided a password, start the backup with "Backup now".

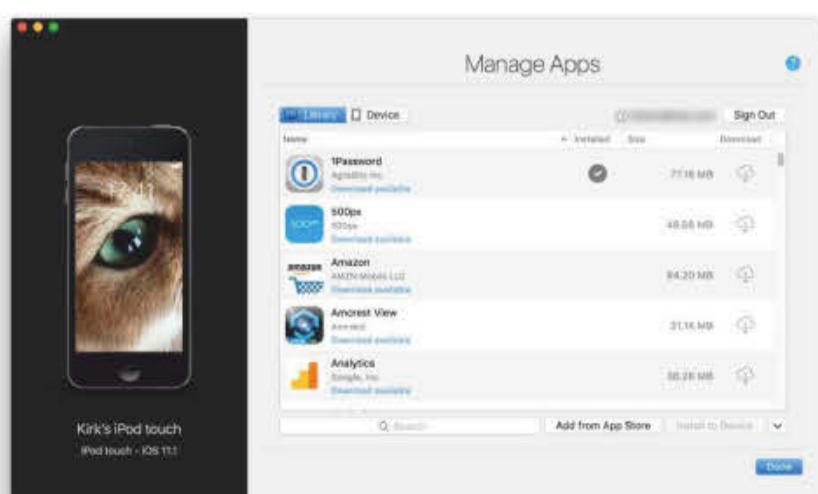
If you want a backup of only the videos, images and contacts, just use an external storage solution, such as the Leef iBridge 3 (approx. RM220).

Local backup for old apps

Although all the data is backed up during the complete local backup, there is an important exception: Apps. Even during a backup on the desktop computer, the iPhone entails the installed apps from the app store after the restoration of the backup. According to Apple, this is purely security measure in order to protect from compromised apps. For the user, it means that Apple can delete apps from the store without any prior notification. This has happened often in the past, e.g. with programs, which examined the telephone components through jailbreaking. According to Apple, the apps violate the guidelines of the store. For the users, this means that if the app is no longer on the mobile phone, it can also no longer install the applications. But with the correct tools, you can create backups for all apps and therefore avoid their deletion.

The iTunes version 12.6.3.6 (osxdaily.com/2017/10/09/get-itunes-12-6-3-with-app-store/) is best for older devices, as this special version can be used to make backups directly from the mobile phone. It differs from the current iTunes version in terms of several factors. For example, if you want to use Apple Music on the desktop computer then you can't, since you need the newer version. However, having two different installed versions of iTunes is not possible.

Basically, the latest devices with iOS 12 do not work with the old iTunes version. Here, you can use the offers of third-party manufacturers, e.g. the iMazing (imazing.com) program. In this way, not only can you create backups but also secure the apps locally on the computer. But note that the apps work only with the iPhone from which you have taken the backup of the app. This interlinking exists so that the app is protected with a certificate, which is not device-independent. Therefore, it is best to secure the apps from all the iOS devices on your desktop computer via complete backup. **C**



For direct and local app backups, you need special software for Apple devices such as the iMazing program

App Stores

Unexpected success: Originally, Apple had no plans for an app store and had to first be persuaded into it by developers. Apple should be thankful for this because the app business is booming

By Ibrahim Altiparmak

Year in which Apple and Google App stores started
2008

Number of available apps
(Q4/2009)

App Store
approx. 100,000

Google Play (Android Market)
approx. 16,000

Apps available right now

App Store
1,982,934

Play Store
2,956,173

Number of application downloads as per operating systems

iOS
645 million

Android
1,200 million

Do you check if free apps collect data?

Not all free apps are free in reality. Whether the cost is personal data is irrelevant to users in most cases.

Percentage of paid apps out of the total supply

App Store
10.8 % (215,190)

Google Play
4.6 % (136,477)

The most popular apps for 2017

iOS
Instagram, Snapchat, YouTube

Android
TikTok, Facebook, Whatsapp

Sales in mobile apps in

2009
USD 4 billion

2017
USD 88 billion

The highest grossing apps in (as of 3rd quarter 2018)

iOS
Netflix – USD 790.2 million

Tencent Video – USD 490 million

Tinder – USD 462.2 million

Android
Tinder – USD 274.9 million

Google Drive – USD 164.3 million

Pandora – USD 132 million

Share of turnover for Google and Apple for each app bought from their app stores
30 %

How many millennials worldwide would open their apps in a day

1-20 times
49%

21-50 times
30%

More than 50 times
21%

Percentage of daily users of average apps

after 3 days
23 %

after 30 days
10 %

after 90 days
4 %

Compared to this, active users for Top 10 apps

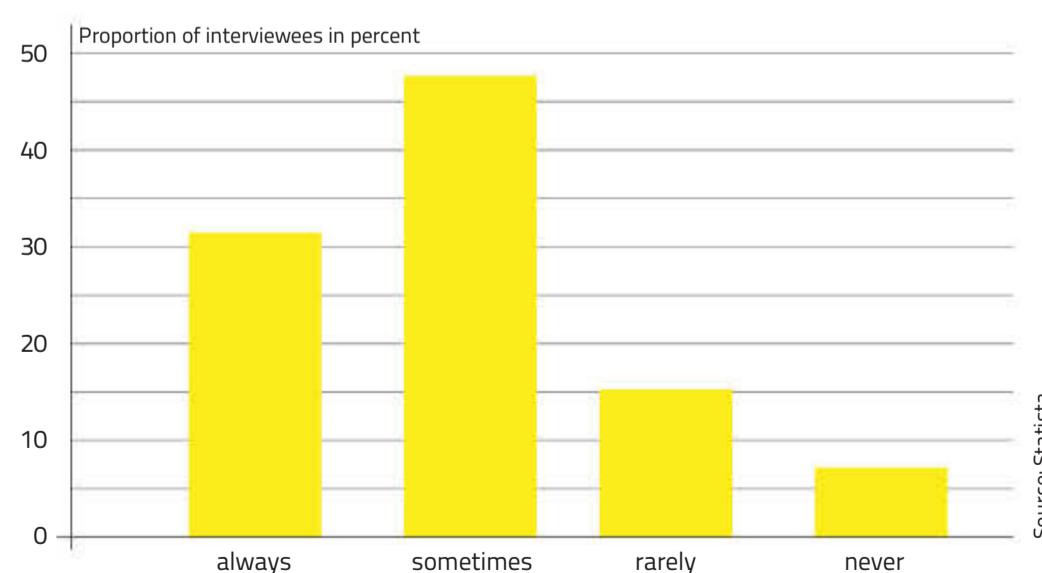
after 3 days
71.5 %

after 30 days
59.8 %

after 90 days
50.8 %

Percentage of users who have installed 13 or more apps
54 %

Percentage of users without apps
2 %





Immersion Into Virtual Worlds

The future is expected to belong to augmented reality. Even though it is still in its infancy, the market for it is growing – and a handful of devices and applications already exist

By Heiko Bauer

After virtual reality, augmented reality is now gaining momentum. While VR completely immerses the user in an artificial world using closed headsets, Augmented Reality (AR) is expected to add more information and objects to the real world. The first such systems already existed in the sixties, but the concept became well-known due to the Google Glass data glasses, which were introduced in 2012. While the wearable was seen as a technical milestone by many IT professionals, data protectors looked at it as a threat to the privacy of users and of those around them. This was mainly due to the built-in camera, which sent images from the surroundings to Google for evaluation, for it to be able to display relevant information in the user's field of view via a glass prism. Furthermore, many people felt threatened by the fact that you could imperceptibly record photos and videos using the glasses. Google discontinued the sale in January 2015, but

reintroduced it after less than a year and while it was still in the development phase.

Microsoft as a pioneer for Augmented Reality

That same month, Microsoft surprised the world with glasses that showed holographic 3D objects in the user's field of view. The HoloLens makes completely new visual experiences possible. There, robots climb through a hole in the wall, or life-size dinosaurs walk through the living room while you can look at them from all angles. Even Windows 10 desktops and applications can be placed as a window anywhere in the room.

At a price of over USD 3,000 (RM12,500), this is of course some rather expensive fun that would very likely scare off private buyers. But there is a great potential for such AR applications in industrial areas. For instance, the exact location of a part to be

Photos: IKEA/Johan Nilsson (main image); manufacturer

replaced can be shown to a service technician on site, who has to service a complex production plant - including an instruction video for assembly. Product designers can even view and optimise their designs in the room prior to prototype production. AR can be useful in medicine as well. For example, the research organisation Cambridge Consultants has introduced an application that allows surgeons to look inside patients during minimally invasive procedures, such as with an x-ray vision. Another example is the DS Rigi, a smooth-deck side-wheel steamer from 1848 exhibited at the Swiss Museum of Transport in Lucerne. With the HoloLens, the ship can be superimposed by model versions from later years and the respective technology can be seen from the inside as well (www.augmentit.ch).

Complete technology inside the glasses

An accurate position tracking via four normal and one depth camera ensures that the HoloLens keeps all objects in place, even when the user is moving. It is mainly controlled via gestures and language. Unfortunately, the field of view (FOV) is only around 35 degrees, due to which larger objects are laterally trimmed upon approaching them. For comparison, current VR headsets offer a perspective between 90 and 110 degrees.

The total required technology is integrated in the device and is operated with Windows 10. Thus, the innovative headdress also weighs nearly 600 grams, compared to Google's data glasses that weighed only 43 grams. An adjustable, padded ring provides for a still acceptable comfort, like a bicycle helmet. If used productively, the HoloLens cannot be worn for very long, though. Since the battery runs out merely after an hour, as opposed to theoretically possible five and a half hours.

Lighter models with external computer

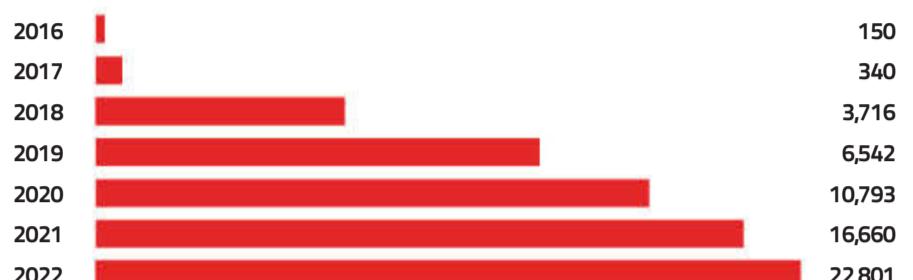
The competing product from Florida-based Magic Leap, which is available as a developer version since August 2018, accommodates a 415-gram computing unit in a separate housing, which is worn on the belt or on the arm and is connected to the headset via cable. Weighing only 325 grams, this burdens the wearer much less than the HoloLens. By means of a horizontal FOV of 50 degrees, objects can look significantly larger with the Magic Leap One than what its Redmond competitor's product is capable of. Here, the operation is done via gestures or controllers. The term "Leap Motion Table Tennis" on YouTube shows you an impressive demo video of a virtual table tennis game. This glasses cost around US Dollars 2,295, which is a lot less than the HoloLens, but it's still not cheap enough for mass production just yet.

Meta 2 is significantly more affordable and also available as a developer version with a price of about US Dollars 1,200. However, these AR glasses require a cable-connected to a Windows 10 PC for operation, which severely limits possible applications. But more computing power can be made available that way than what the competitors offer, by means of which more complex representations are possible. What distinguishes the Meta 2 is its enormous horizontal field of view of 90 degrees. Because of that, the big holograms are not cut off as fast as they are with the competitors. Moreover, 3D objects can be moved with the hands.

Estimated AR glass sales from 2016 to 2022

According to a forecast by Tractica, sales of AR headsets could increase by more than 150 times by 2022, as compared to 2016

2016 to 2022 (in thousands)



Source: Tractica



Efficient but heavy

The HoloLens by Microsoft bundles the complete technology in one device. But it is somewhat heavy at 580 grams



Glasses with PC

With a horizontal viewing angle of 90 degrees, the Meta 2 has a very wide field of vision. However, this device needs an external Windows computer



The computing unit of the Magic Leap One sits in an external module. Even controllers are available for the operation

AR games

The demo video by Magic Leap shows a sporty option for the use of AR





The cardboard kit Aryzon turns the smartphone into a simple but affordable augmented reality headset

Extended navigation: AR Maps

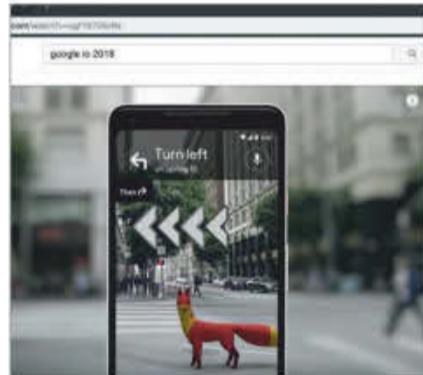
Having Google Maps navigate you to your destination on foot can be an idle venture. You will often know after the first few steps if you have gone in the wrong direction and the directional instructions often fail to clearly explain to you which road it is.

> **Visual cards** In the AR Maps presented at 2018's I/O developers conference, the directional arrows are displayed in the right place directly in the image of the cell phone camera. It's even easier with virtual guides, which the direction-seeker simply needs to follow. Google renders the guide as a little fox.

> Real-time matching of data

This is made possible by

Google's newly developed Visual Positioning System, which compares the live images of the environment with data from Maps and Street View. Thus, the device detects the position of the user right down to a few centimetres.



With the Place app by IKEA, furniture and a lot of other fixtures can be viewed live at the intended location before the purchase

The i Visualizer by BMW enables the configuration and viewing of the cars from all sides



Despite different technology being externalised, this headset weighs half a kilo making it barely lighter than the HoloLens.

Five Dutch students are pursuing a particularly inexpensive approach with their AR glasses Aryzon, funded by Kickstarter. It is mostly made out of cardboard and will be available as a kit. Like Google Cardboard, it can easily be operated with an inserted smartphone. Even though the results cannot keep pace with those of HoloLens and Co., the Aryzon glasses cost only about 30 euros.

Moving the furniture without any sore muscles

You can experience extended reality with your smartphone or tablet without any additional hardware costs. The holograms will be displayed on the screen in the image of the camera and can be fixed at a specific location in the room. As with headsets, they do not change their position even if you move along with your smartphone. This does not seem quite as realistic as it does with AR glasses, but it still brings about some fascinating results.

For example, with IKEA's app called Place, you can virtually refurnish your home and see how the furniture would look in its intended location like before you buy it. PLNAR (only iOS) can also measure the apartment immediately and make a 3D model of it. Another example is the i Visualiser, which will let you know how a BMW i3 or i8 would look in front of the house; you can see the cars on the premises and even from the inside.

The Just a Line app by Google revolves entirely around white lines. With this app, drawn images and figures float in the air and can also be bypassed. What's exciting here is the option to work together with others on the same project. This is ensured by the ARCore function Cloud Anchors, which synchronises the position data between the individual devices. For example, a Tic-Tac-Toe game is possible with it, as Google shows in a video at justaline.withgoogle.com. Besides that, the Lego AR Studio for iOS promises fun for friends of small plastic stones from Denmark, with which virtual structures can be projected on real surfaces.

More and more supported smartphones

The software interfaces required for Smartphone AR are offered by Apple and Google with ARKit and ARCore respectively. Only certain devices are supported since the applications need substantial computing power. ARKit works from iPhone 6s and iPad 2017 onwards. ARCore supports these iOS models and of course a series of Android smartphones. There is an up-to-date list under developers.google.com/ar/discover/supported-devices. New models are added since the platform has to be adapted individually.

Even the orientation skills of AR apps are relatively limited and tied to platforms. Matt Miesnieks, co-founder and CEO of AR Company 6D.AI, believes that augmented reality can make a breakthrough only when AR apps can orient themselves location- and platform-independently. He therefore proposes the creation of an AR cloud, a kind of 3D GPS, with which the devices can orient themselves spatially. Google is already taking the first steps with its AR maps. Here, Google matches the current camera image with Google Street View (refer to the box on the left). □

Werner Zorn - Father Of The Internet In Germany

Werner Zorn brought Germany to the Internet, and it was the fourth country to do so after the United States. As the project manager for "Interconnection of Networks", he connected the German Research Network DFN (Deutsche Forschungsnetz) to the American Research Network and Internet predecessor, CSNET, in the early eighties. But in years following that, he always expressed this deep disappointment: "We were at such an early stage and we messed it up." It was already in 1997 that he saw the Internet as a "platform of a future global information society breaking through all borders of growth", but at the same time he also saw Germany as a multimedia development country. "The Internet plays an increasingly important role in Germany, but Germany plays no role in the global Internet," he said.

Zorn was bothered by the "failed German Internet development". No wonder, then, that he saw how a fantastic idea gradually became a damp squib because of mismanagement. Countries like the Netherlands left Germany behind in digital dust. Retrospectively, Zorn described the role of the country not only as obstructor. The then Federal Ministry for Research and Technology had "literally fought" the new Internet technology by relying on OSI and not on the superior TCP/IP as a communication protocol and on the Federal Post as an allegedly technically neutral partner, but in fact the head brakeman of the development of German computer networks. That could sound bitter or at least annoyed. However, pure fascination and enthusiasm for the network of networks still radiates between Zorn's lines. Today, he still sees the Internet as "the small circle of former pioneers and idealists". "The illusion of a Better New World" has been lost, however. ☐

"None of us would have been able to imagine today's Internet even in our dreams."

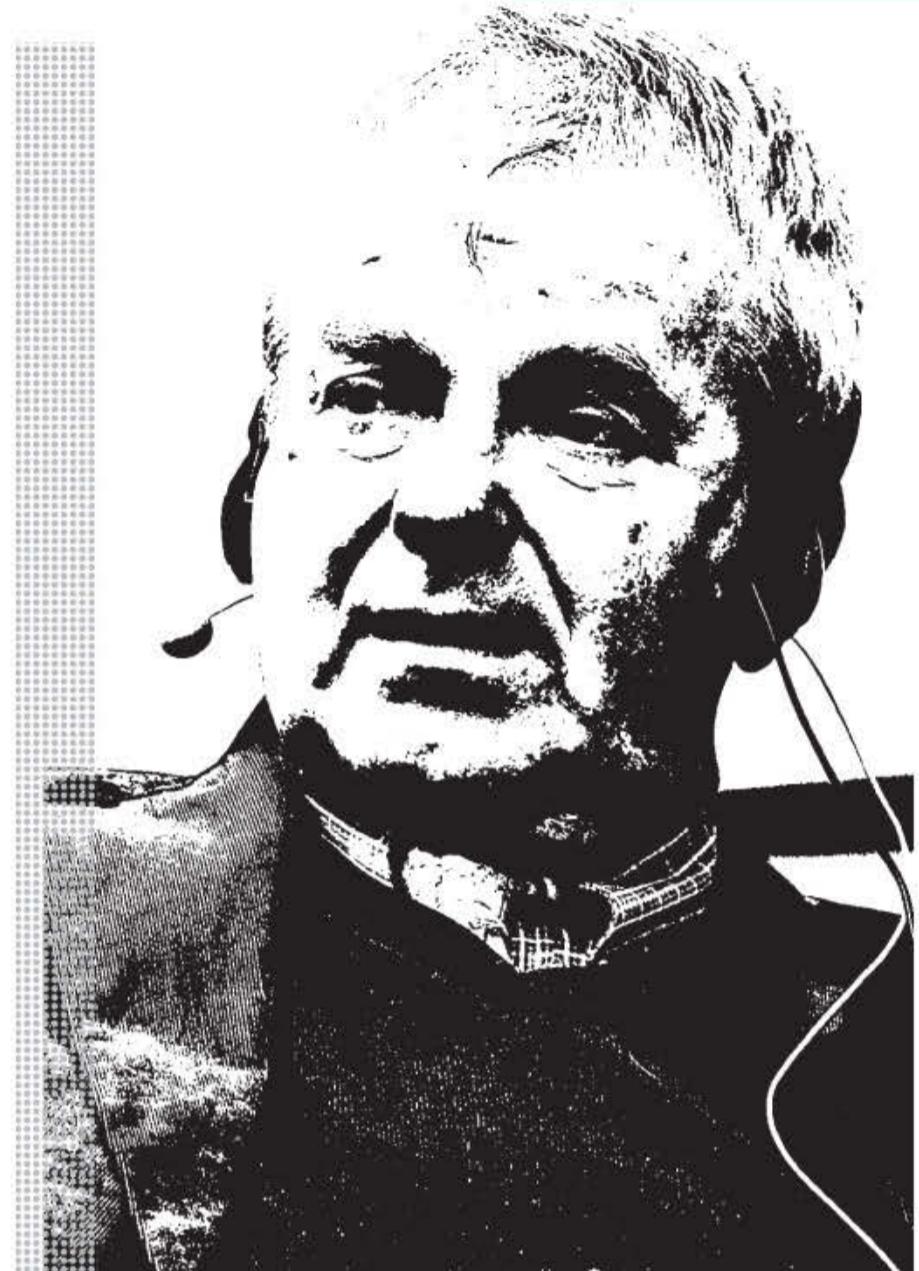


Photo: Kay Herschelmann/CC BY-SA 4.0

Profile

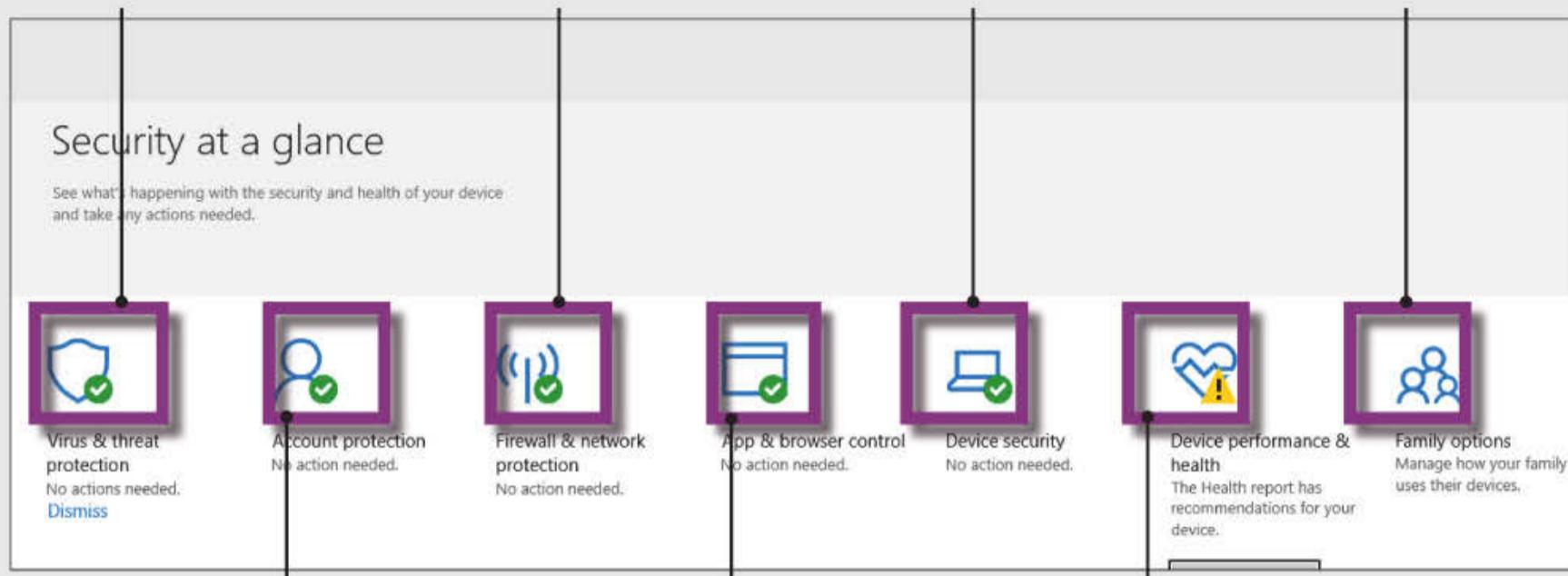
- 1942 in Frankfurt/Main
- 1962 TH Karlsruhe, Communications engineering
- 1971 Doctorate in Engineering
- 1972 Development and management of Computer Science Department (IRA), University of Karlsruhe
- 1979 Appointment as Professor, University of Karlsruhe
- 1983 Management of BMFT project, "Interconnection of networks", connecting the German Research Network DFN to the CSNET
- 3rd August 1984 Domain release of "germany.csnet" with first German Internet e-mail to Michael Roter and Werner Zorn (CC: zorn@germany.csnet)
- 1987 Connecting China to the CSNET via the email relay of Karlsruhe
- 1989 Founding of XLINK, one of the first German Internet providers
- 2001 Switch to the Hasso Plattner Institute, Department of Communication Systems
- 2006 Order of Merit of the Federal Republic of Germany
- 2013 Inclusion in the Internet Hall of Fame
- 2014 Friendship Award of the People's Republic of China
- 2016 Honorary member of the Leibniz Society of Sciences

Viruses must keep out
Windows 10's integrated virus scanner fends off threats and is now operating on a competitive basis.

Fend off attacks from the web
No access to your internal network: The in-house firewall blocks unwanted network traffic.

Are foreign bodies attacking your data?
Devices that are used particularly on the go, which can be lost or stolen, must be safe against breaking and entering.

Better protection for children
Are your children allowed to access the Internet on their own? Then there are a number of child protection module options made just for you.



Is your Windows account secure?
Microsoft Account, Windows Hello and Dynamic Lock feature play a major role when it comes to safety.

This download is really safe
SmartScreen warns you about dangerous links and downloads. Windows apps are also constantly monitored.

No more trouble with drivers
Is your system running smoothly? A glance at this module of the Windows Defender Security Centre tells you about it all.

Security Centre For Windows 10

The Windows Defender Security Centre brings together the most important security settings under one roof in Windows 10.

By Artur Hoffmann

Security is probably of the highest priority on your computer as well. It's only logical that Microsoft does a lot to protect the operating system against external attacks for Windows 10. As part of milestone updates of the past, the company filled many of its gaps in a very intelligent way: For instance, "Dynamic Lock" automatically locks the computer when you or the smartphone paired with the computer via Bluetooth are no longer in its vicinity. "Windows Hello", a biometric authentication procedure that drastically simplifies log-in to Windows devices and supported apps and websites using face recognition or fingertips,

also provides extra security. The only catch here is that you must use certified accessories, such as a camera or fingerprint scanner, to benefit from it in your daily work.

Windows with virus protection: Not bad at all.

One of the most popular functions is the "Windows Defender Security Centre" - renamed from Windows 10 to "Windows Security" since the October update. This is a central control module that gathers all important security settings and tools under one roof. This also includes the system's own virus protection. This

was not recommended for a long time, but in recent tests, it surprised us with such good results that it is now recommended as an alternative to paid virus suites. In a total of seven sections in the Security Centre, you can see which security functions are activated on your computer, whether configuration errors may lead to security gaps, which system updates are installed or - very importantly - whether the system is stable, at a glance. If you have been working with Windows computers for some time, you may experience déjà-vu at this point. In fact, the structure is reminiscent of the former security centre in Windows XP Service Pack 2, with which Microsoft had retrofitted similar functions. Windows Defender, like its predecessor in Windows 8/8.1, provides basic protection against viruses and spyware. With Windows 10, Defender is permanently integrated into the operating system and is automatically active after Windows 10 has been installed - unless your PC is running another provider's antivirus program. You will find this module as well as the other security tools in the

WINDOWS 10: THE INTEGRATED VIRUS PROTECTION

The Windows Defender integrated in Windows 10 keeps getting better. In the last reviews of the AV Test Institute, the free virus scanner from Microsoft achieved a very good score of 17.5 out of 18. But this is only when you help, since the antivirus solution has a lot more protection mechanisms that Microsoft don't always activate by default.

1 Initiate update personally

Normally, Windows 10 makes sure that the virus and spyware definitions are up to date. You can also activate the update manually: Open the "Windows Defender Security Centre" (after the October update "Windows Security" and click first on "Virus & Threat Protection", then on the link "Check for updates".

2 Start Quick Virus Check

Once the virus and spyware definitions are up to date, you should trigger the "Quick scan". Allow about half an hour for this check to complete. The complete analysis of the computer takes much longer. To do this, select "Full scan" in the "Scan options". This is best done in the evening and should be run overnight.

3 Performing a Custom Scan

You do not always have to run the quick or complete check. The "Run a advanced scan" is also available in the options. If you choose this option, you can select which file(s) or folder(s) the virus protection should scan.

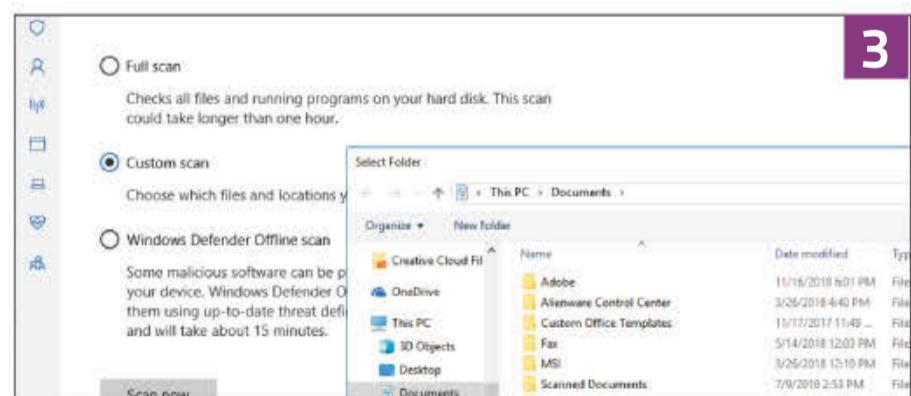
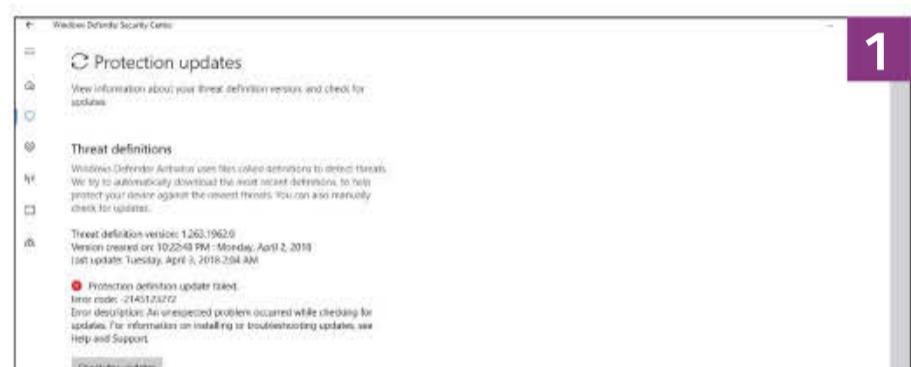
4 Using Windows Defender Offline

The fourth option provided by the Windows 10 virus scanner is called "Windows Defender Offline scanning". This procedure is appropriate for malware that are particularly difficult to remove, such as Trojans or Rootkits. The device is scanned in safe mode before Windows starts.

Windows Defender Security Centre. To do this, click on the Windows flag and select "Settings | Update and Security | Windows Security | Open Windows Defender Security Centre". Alternatively, you can click on the "Shield" icon in the systray and call the module using the right mouse button and the context command "View Security Dashboard". A short guide on how to use the anti-virus module of Windows 10 can be found at the bottom of this page.

The virus scanner offers a (good, since we last checked) basic protection. If you want premium protection with a number of extra functions, an alternative such as Bitdefender Antivirus Plus (bitdefender.com), Kaspersky Anti-Virus (kaspersky.com) and Trendmicro Antivirus (trendmicro.com) is the right choice for you.

In the following, we will give you an overview of the options of the Windows Defender Security Centre and its individual modules - and recommend where you should upgrade with additional tools.



The screenshot shows the Windows Defender SmartScreen settings. It includes sections for 'App & browser control' (with a note about SmartScreen settings for apps and browsers), 'Check apps and files' (with a note about Windows Defender SmartScreen helping protect from unrecognized apps and files, and options to 'Block', 'Warn', or 'Off'), 'SmartScreen for Microsoft Edge' (with a note about the filter protecting from malicious sites and downloads, and options to 'Block', 'Warn', or 'Off'), and a summary note: 'Download protection: Apps and files that do not belong on your computer can be blocked as a precaution.'

The screenshot shows the Windows Defender Security Center with the 'Device security' section selected. It displays 'Device security' (security built into the device), 'Core isolation' (virtualization-based security for core parts of the device), and a note that standard hardware security is not supported.

In "Device Security" section, you can find out which security technologies and components are in the device.

The screenshot shows the 'Fresh start' section of the Windows setup. It includes a note to start fresh with a clean and up-to-date installation, a detailed note about starting fresh by reinstalling and updating Windows, a 'Get started' button, and a 'Learn more' link.

Radical step: Click on "First steps" and "Next" to initiate a new installation of the operating system.

Virus & threat protection:

At this point, the security centre shows you the results of the last virus scan or current threat events. If you do not use the virus scanner included in Windows 10 i.e. Windows Defender, you will see the information from third-party virus scanners there. It is reassuring to know that Windows Defender automatically jumps into the gap as a saviour for those times when you forget to renew your virus scanner subscription and it stops working.

Account protection:

This feature alerts you regarding problems with your Microsoft account, Windows Hello (if supported by the device), and the Dynamic lock security option mentioned earlier.

Firewall & Network Protection:

This is where Windows displays the current network connections and active firewall settings. If you are technically well-versed, you can conduct a lot of intervention in the computer's communication using this module. However, you need to have knowledge of ports, IP addresses and technical terms from network technology. Of course, inexperienced users will not be left out in the rain. In this section, you will also find various links with further information to help with network problems. What's good is that if you don't trust the Windows firewall one hundred percent, you can just use a third-party desktop firewall, such as Zone-Alarm Firewall Pro (zonealarm.com).

App and browser controls:

In this section, you can make SmartScreen settings for files, apps, and browsers. SmartScreen warns you about dangerous links and downloads as well as dubious apps. This protection has been on board since Windows 7 and checks all downloads since Windows 8 - regardless of what browser you use. If a program is classified as unsafe, you will receive a warning notification. SmartScreen also keeps an eye on Windows store apps that download Internet content and has an exploit protection that can fend off attacks from the Internet.

Device security:

This safety module has been integrated since the last spring update and provides "Core isolation", "Security processor" and "Secure boot". The latter two functions require a TPM 2.0 chip.

Device Performance & health:

This module enlists the current status of updates, drivers, battery life, memory usage, apps and software. This section is especially important if you frequently have to deal with hardware or software problems; it is where the option to reset the operating system is hidden, by using the "Additional info" link under "Fresh start". Click on it to initiate the next steps - needless to say, only after a security prompt. Why you ask? The personal data is retained only if Windows is reset, but all subsequently installed programs are deleted.

Family options:

If you have children, you should definitely take a look at this. Click on "Show family settings" and log in with your Microsoft account. You can then specify, for instance, how long your children can sit in front of the computer or use the Xbox, which websites they can visit and which age-appropriate apps and games they can buy or run. Or you can easily keep track of your children's digital world with weekly reports on their online activities.



1

Windows Defender Firewall by Windows 10

1 Open firewall dialogue

The way to the well-known and tried-and-tested Windows firewall is also found in the Windows Defender Security Centre. There, click on "Firewall & network protection". Various firewall options are hidden at the bottom of the list. If these are greyed out, use an external desktop firewall.

2 Control app communication

Should programs and services be allowed to communicate with the outside world? Select "Allow an app through firewall" and then "Change settings". In the following list, you can check the remote settings. In this example, we prohibit remote support from accessing public networks.

3 Add unlisted apps

If you want to allow an app or application that is not included in the list to communicate with the outside world, click on "Allow other apps | Browse" and mark the app. Click "Add" to add it to the list and define the allowed "Network types". Finally confirm with "OK".

4 Define Access Rules

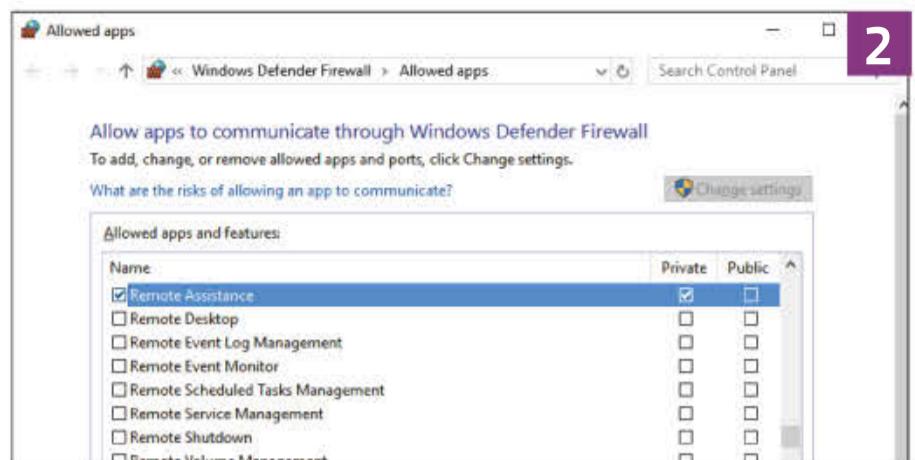
In "Firewall & Network Protection" open the "Windows Defender Firewall with Advanced Security" via "Advanced Settings". Using the "Inbound rules" and "Outbound rules" functions, you can define access rules to pass data packets that would actually be blocked, for instance.

5 Define Access Rules

Select "Windows Defender Firewall with Advanced Security" on the left and click "Properties" on the right. If you want to exclude a network connection, for instance via "Bluetooth", from the monitoring, click in the "Private profile" tab under "Protected network connections" on "Customise" and remove the check mark.

6 Reset to default settings

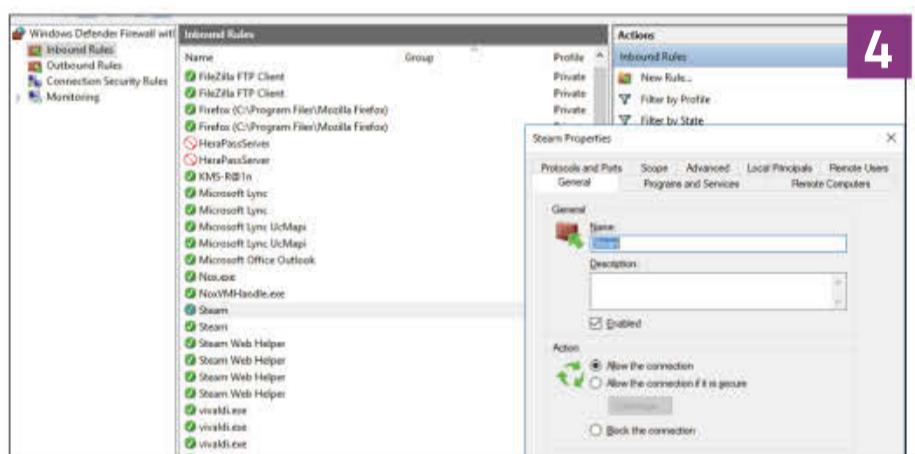
Have you lost track of which rules you have defined, which apps you have allowed or which connections you have allowed? No problem, use "Restore Default for Firewalls" and "Restore Default" to restore the Windows 10 system component to its original security settings.



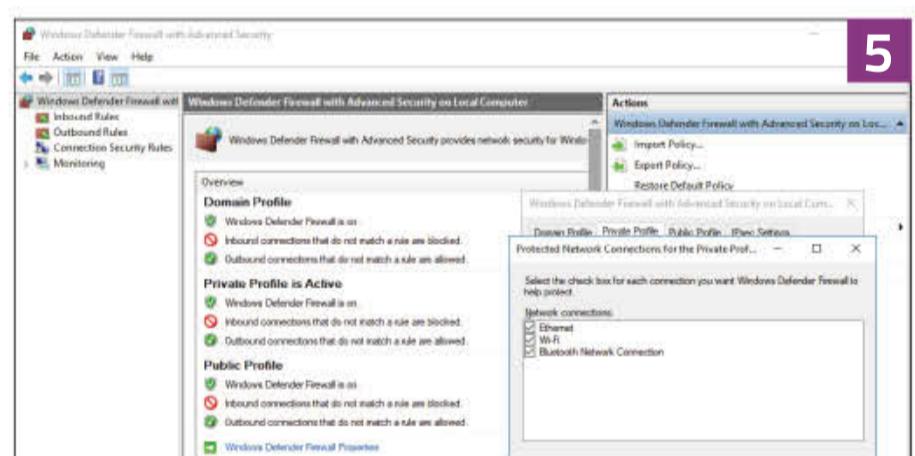
2



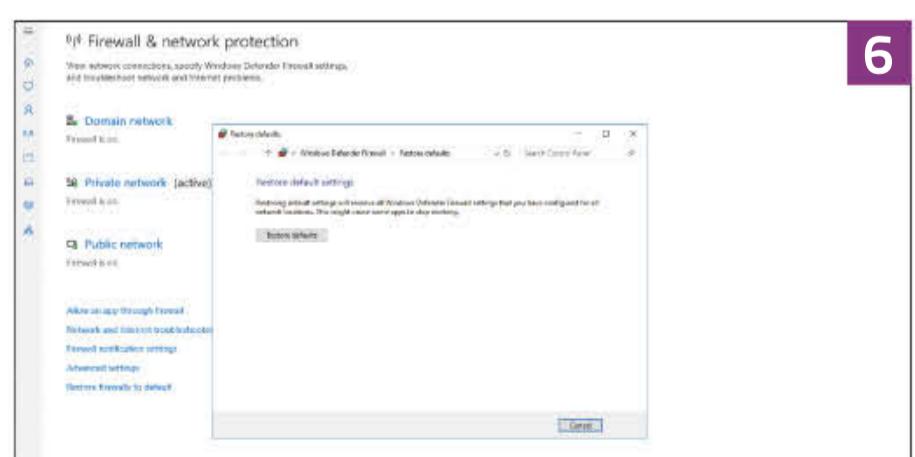
3



4



5



6



Hydrogen: The Alternative To Batteries?

The climate protection requires new sources of energy. Batteries are often the right solution, hydrogen and fuel cells are great for longer ranges – such as in the Toyota Mirai

By Sepp Reitberger

The percentage of renewable energy in the electricity mix is growing incessantly. It's a good thing, but in the medium term, the increase in wind and solar power is causing a big problem: The electricity is not consumed right when and where it is generated. The distribution of the electricity must be solved with additional power lines, but its storage requires new technology. E-cars with large batteries are useful to a certain extent because they can absorb short-term overproductions – provided that there is a signal for the overcapacity.

Should the entire road traffic be switched to electric drive, it will have a very large impact on the electricity grid, because longer phases without wind and sun must not result in total local breakdowns. In other words, storage capacities must be able to go beyond the car's batteries.

An approach that has been discussed for decades bypasses the electricity grids from the beginning: Hydrogen, which can be produced with electricity via electrolysis from water. The storage

of the volatile gas is not simple – but today, there are tanks that are made of composite materials, which can retain it for pressures up to over 700 bar for long spans of time without cooling. The energy content of hydrogen is ample: One kilogram of the gas has a calorific value of 33.3 kilowatt hours – corresponding to almost four litres of petrol. With a tank for five kilos of hydrogen, a range of around 400 kilometres is feasible. Also, while the refuelling is technically complex, it's actually easy for the user.

Hydrogen-generating plant: This is how electricity is generated

In the car, electricity is produced from hydrogen in a fuel cell. The core of the fuel cell is an electrolyte membrane, on one side of which hydrogen flows by, and air-oxygen on the other. The hydrogen nuclei (protons) can penetrate through the membrane and react with the oxygen, then the remaining electrons generate a voltage that can be used via electrodes.

Photos: Toyota

Mirai to the test: Full road capability

The fuel cell in the Toyota Mirai needs the support of a small buffer battery in lithium-ion technology for starting and for maximum power. However, it can be regulated so precisely during the drive that it can deliver the driver's performance requirements very directly. The noise that gradually gets louder when accelerating is reminiscent of modern turbo engines. As for these engines, it takes one to two seconds until the full power of 115 kW (155 hp) is applied. As a result, the Mirai does not drive as dashingly as a pure electric car, but it requires no settling in at all. A good 10 seconds for the sprint to 100 km/h and 178 km/h top speed are, however, sufficient for all purposes. Having said that, the car cannot retain its top speed for a long time, at least when the ambient temperature is warm. In a test, there was a temperature warning message after a few minutes and the car slowed down. This is remarkable in this respect because for a speed like this, only about half of the maximum power of the fuel cell is required. The actual maximum power will therefore be available only for a very short time. Fortunately, the temperature problem is not a constraint for practical drive mode. At a speed of 150, the system is able to quickly cool back to mild temperatures.

There is another shortfall of Mirai that is more annoying. The assistance systems in this car of the future are out-dated. As a consequence, the distance cruise control, which runs out at less than 50 km/h and is therefore ineffective in stop-and-go mode, turned out to be very disappointing.

On the other hand, the low noise level in the Mirai is pleasant. The fuel cell can only be heard at full throttle, or when the gas pumps and the gas exchange through the membranes, to be exact. Until half throttle, this noise is completely drowned out by the low wind noises.

Big car with modest space

When it comes to spaciousness, Mirai is the alternative concept for most e-cars. In spite of an outside length of almost 4.90 meters and a good 1.9 tons of mass, the car offers space for only four people and at 360 litres volume, the trunk comes to a compact car level. The lack of space is due to the complex and extensive technology – and the fact that five kilograms of hydrogen at 700 bar still take up a lot of space (almost exactly 80 litres – in two very thick-walled cylinders). The space economy is the only constraint when it comes to daily use.

After pressing the start button, the fuel cell goes into operation with a soft hum and it will kick off immediately. During below zero temperatures, there is a short heat-up phase – water finally forms in the fuel cell, which would freeze at sub-zero temperatures and prevent the flow of electricity. Toyota promises operational reliability for up to minus 30 degrees.

Also, there is no reason to think that the water will result in a flood or more ice on the roads: In the test, Mirai required somewhat more than a kilogram of hydrogen per 100 kilometres. In doing so, eight litres of water was produced – just as much as a petrol engine with eight litres of fuel consumption. At minus temperatures, a large part of the water gets condensed in the exhaust even in the petrol model and leaks out from the back.



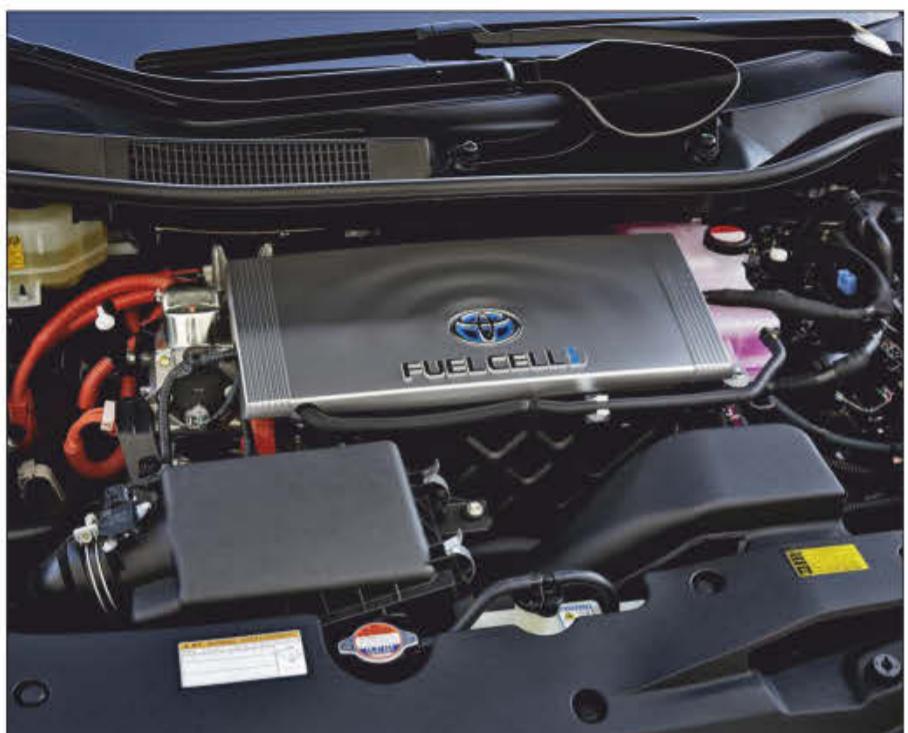
The large tanks and the complex technology occupy a lot of space in the Toyota Mirai – leaving little room for the occupants



In the luxury class, a minibar can often be found in such centre consoles. In Mirai, there is a power electronics unit between the seats



Despite 700 bar and extreme volatility: Refuelling hydrogen is as easy as winking. Five minutes is enough for a range of up to 400 km



The exotic drive is barely visible under the engine bonnet. The important part of the technology lies at the bottom of the car



At least in warm ambient temperatures, the Mirai cannot keep its top speed for long, for overheating is a possibility



Hydrogen competition from Korea: The Hyundai Nexo is already the brand's second fuel cell car. Its cost starts from EUR 69,000 onwards

Expensive and rare: Hydrogen petrol stations

The price of hydrogen at the current 46 fuel dispensers in Germany is stipulated by the legislature because of the government subsidies; EUR 9.50 per kg is the price for the amount of energy in electricity (33.3 kWh) that is contained in hydrogen. With a consumption of just over one kilogram per 100 kilometres, it is clear that emission-free driving is not cheap. In fact, a diesel car drives at a lower cost. Above all, the comparison with battery power supplies is shockingly bad. Even a Tesla Model X with dramatically larger space (and weight) manages 22 to 23 kWh per 100 kilometres – a Hyundai Ioniq electric is less than 16 kWh per 100 kilometres. The consumption shows the efficiency of the fuel cell in Toyota, which is around 45 per cent. This value is very disappointing, because it is a value easily attained by modern truck diesel engines. Assuming that the production of hydrogen via electrolysis is carried out with an efficiency of 70 to 80 per cent and the transport also costs energy, the disadvantages with respect to battery electric drives are obvious. Instead of only about 33 per cent, at least 60 per cent of primary electric energy is used as driving energy on the road. At the current state of the technology, the expensive fuel cell is left with nothing for the overall balance even in exchange for synthetic fuels for internal combustion engines (such as methanol, which could be generated from the hydrogen). Furthermore, with the state of the technology in 2018, industrially produced hydrogen does not come from solar or wind power. Instead, it is produced from fossil fuels, during which huge amounts of CO₂ are released. The hydrogen industry must therefore improve significantly at all ends.

Refuelling as with the petrol engine

At least refuelling is not complicated for the Mirai driver. All you need to do is put the gas pump nozzle into the car and press the start button on the fuel pump. The hydrogen is pre-compressed to 700 bar only during the refuelling process, so it takes a little longer when refilling than it does with the petrol engine. However, you do not need to wait more than ten minutes for this, and because the hydrogen filling station network is invoiced directly on the charging point via a card reader system (in Germany), you even save yourself the trip to the cash register. When it comes to refuelling while on the go, the Mirai beats every battery electric car by far. In turn, the e-cars can drive off every morning with a full charge if the overnight parking lot is equipped with a power outlet.

Conclusion: Hydrogen is currently the most promising medium for energy storage on a large scale – an alternative that can store electricity at an equally low price does not exist. Mirai shows that the fuel cell drive works and does not require the combustion engine driver to make any significant changes during the use. This is a notable advantage compared to the first battery-electric cars. But in order to present a real alternative for mass mobility, the efficiency of fuel cells has to be increased significantly and the prices of the technology need to be decreased dramatically. Then and only then can cars like the Mirai or the brand-new Hyundai Nexo actually become cars of the future. You have to dig deep into your pocket if you want to use this technology today, considering that the Mirai costs EUR 79,000 (approx. RM376,000) onwards, while the Hyundai is supposed to be available next year for EUR 69,000 (approx. RM328,405) or more. ☐

BACK ISSUE

Only
RM7.00
each !

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.



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 enclose payment of RM _____ payable to **Online Dynamics (M) Sdn Bhd**

Cheque No

Name of Bank

Money/Postal Order No.

Issue Request

Signature

Date

BACK ISSUE VIA CREDIT CARD, KINDLY LOG ON TO
[www\(chip.com.my](http://www(chip.com.my)) FOR IMMEDIATE PROCESSING

Snazz It Not Scrap It: Hardware – Good As New!

Once dearly beloved, but now discarded – this is the way for a lot of hardware. But only a few steps are necessary to breathe new life into old computers and mobile devices

By Martin Jäger And Christoph Schmidt



Photos: Trifonenko / Getty Images (layout); CHIP Studios; Manufacturer (Products)

Such is the case in most households - one box full of electronic devices that are not in use any more, stashed away in the den or in the attic. Most things have landed up in the box because they have a defective button or a broken screen. As well-trained consumers, we tend to dispose of old devices mindlessly and replace them with new ones even it hurts the pocket and the environment. In the course of this, it is therefore a good feeling to recondition old notebooks, tablets or smartphones in order to bring them back from the tomb of the storeroom and into our daily life. In this article, we will show you how to give a second life to old hardware such as network storage, media player, home network centre or navigation device on the bicycle frame.

REFURBISH LAPTOP AND PC

In principle, midrange PCs and laptops that were launched ten years ago during the Windows Vista days still have enough computing power for standard tasks like web-surfing or Office. The only prerequisites are for them to have a 64-bit multi-core processor and for the platform to support at least 4GB RAM. If you wake such a computer from its deep slumber and it hardly does anything, a feeble drive and extremely low RAM are likely to blame; a cluttered storage drive as well as a disorganised operating system slows things down additionally. The installation of an SSD represents the ideal solution for these hardware problems. This offers the crucial performance boost and since there are SATA versions in the 2.5-inch form factor, SSDs can be used in all PCs and notebooks that have been rolled out in the previous decade.

Clone it first: Old system on the new SSD

The operating system runs smoothly if you reinstall it on the SSD. If you want to clone the existing system with all programs and data in operation, you should try to do this using the respective SSD manufacturer's tool. Not all of them provide a tool but Samsung and Crucial do have them. For example, Samsung has one for the 860 Evo (see on the right). If this does not work directly, you can write a bootable system on to a USB stick, in which you can start the cloning process. You can connect the SSD as an additional drive during this process, while a free SATA slot is enough on the PC. You need an external 2.5-inch external hard

M.2 SSDs: Alternatives for newer computers

There is an interesting upgrade option for high-end computers manufactured from 2014 onwards. Apart from the normal SATA slots, they also have a slot for an SSD module in the form factor M.2 or mSATA (older notebooks). In the manual or in the technical details for your notebook or motherboard, you can find out whether your computer has such a slot and how to access it. In practice, you can also mount such an SSD onto the SATA magnetic hard drive and install the operating system on it.

> M.2: SATA or NVMe? Only those M.2/SATA SSDs that connect to M.2 slots are considered in most cases for retrofit solutions. However, the faster M.2/NVMeSSDs are only supported by notebooks/motherboards released in the last two years.



1



2

SSD rather than HDD

A SATA SSD 1 is mounted instead of the notebook hard drive. To do this, the mounting frame 2 must be disassembled and then reassembled

SATA SSD > UP TO 200 EUROS

	Samsung 860 Evo:	Overall rating	Price in Euros (approx.)	Read performance (80%)	Write performance (20%)	Nominal capacity (in GB)	Price in Euros /GB
1	Samsung 860 Pro 512GB (MZ-76P512BW)	97.4	190	98	96	512	0.37
2	Crucial MX500 1TB (CT1000MX500SSD1)	97.2	180	99	90	1,000	0.18
3	Crucial MX500 500GB (CT500MX500SSD1)	97.0	95	98	91	500	0.19
4	Kingston HyperX 480GB (SHSS37A/480G)	97.0	200	97	98	480	0.42
5	Samsung 850 Evo 500GB (MZ-75E500B)	96.2	120	96	97	500	0.24
6	Samsung 860 Evo 500GB (MZ-76E500BW)	92.9	110	96	79	500	0.22
7	Adata SU900 512GB (ASU900SS-512GM-C)	92.2	120	93	90	512	0.23
8	Crucial MX300 525GB (CT525MX300SSD1)	90.7	130	91	91	525	0.25
9	Intenso Top III 512GB (3812450)	89.6	85	96	65	512	0.17
10	SanDisk X400 512GB (SD8SB8U-512G-1122)	86.1	190	91	65	512	0.37
11	Adata SP550 480GB (ASP550SS3-480GM-C)	84.7	180	96	40	480	0.38
12	Toshiba TR150 480GB (TRN150-25SAT3-480G)	80.4	180	87	53	480	0.38
13	Kingston UV500 480GB (SUV500B/480G)	77.7	130	85	48	480	0.27

■ excellent (100 – 90.0) ■ good (89.9 – 75.0) ■ satisfactory (74.9 – 60.0) ■ average (59.9 – 45.0) ■ not advisable (44.9 – 0)

All values are in points (max. 100) ● yes ○ no

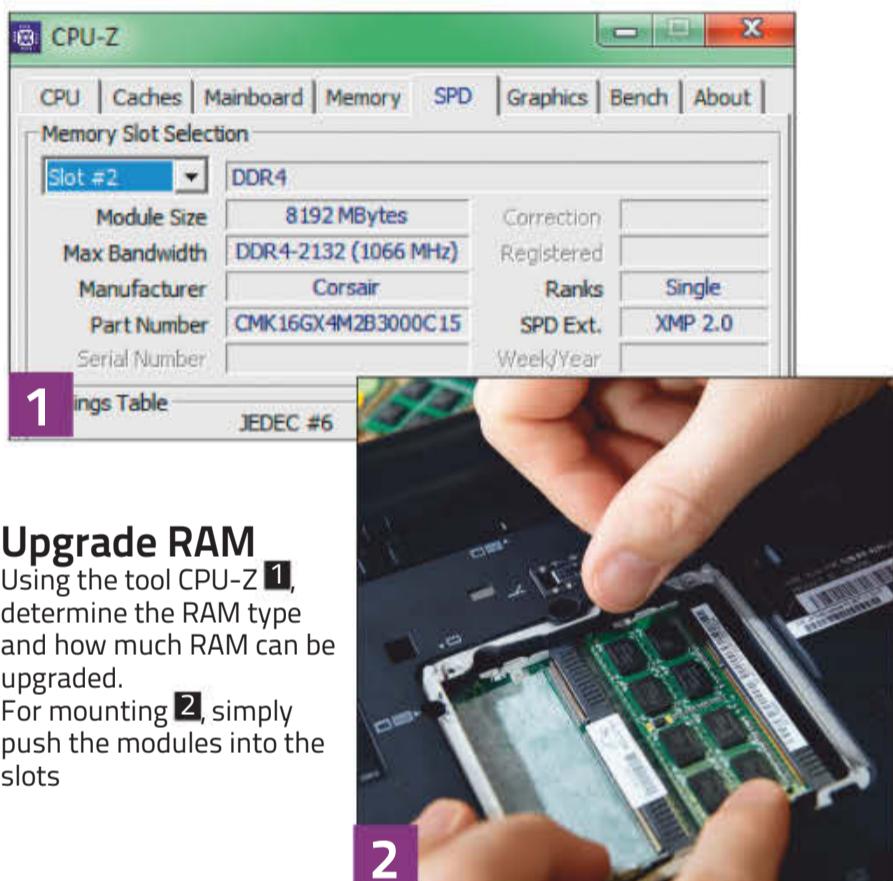


Mount M.2 SSD on the motherboard

The installation is similar to that of a notebook RAM. Place the pins diagonally on the slot, push the module downwards and fix it in place using screw (on the left in the image above)

Docking station for cloning

The Sharkoon SATA QuickPort Duo (approx. € 45) clones the content of an old magnetic hard drive onto the new SSD



Upgrade RAM

Using the tool CPU-Z 1, determine the RAM type and how much RAM can be upgraded.

For mounting 2, simply push the modules into the slots

drive with a USB slot in which you can further use the mounted hard drive. If your SSD does not provide any cloning software or the one it has doesn't work out, try using Clonezilla (clonezilla.org). Those who find the use of software tricky in general can use a USB docking station with clone function (see left). Place the old hard drive or the new SSD on to it and start the clone process at the touch of a button. The prerequisite for this to be successful is that the SSD must have at least as large a storage capacity as the source HDD. The docking station is later useful to create backups on internal hard drives as removable media.

New SSD in the old SATA tray

The actual mounting of the SATA SSD is, on the contrary, quite simple in most cases. It is easily accessible in desktop PCs. While dismounting, first disconnect the power and cables, then unscrew the lateral screws in order to remove the hard drive from its tray. Follow the steps in reverse to mount the SSD. In conventional notebooks, the hard drive is often under a labeled flap that is easy to open. If it is located sideways in the computer, pull it out along with its case or from its rubber insert (see the top on the previous page) and then dismount it from the drive. If, on the other hand, it lies flat under the flap, remove the screws, disconnect the hard drive from the slots and then remove it.

More RAM and it starts to run smoothly once again

Cheaper and older computers are often lacking in terms of RAM. If it is 4 GB or less, Windows always transfers data onto the comparatively slower hard drive, which leads to unnerving wait times. In most cases, a simple upgrade of RAM is all that is required. The more complicated part lies in discovering the exact type of memory to be installed and up to what quantity can it be installed.

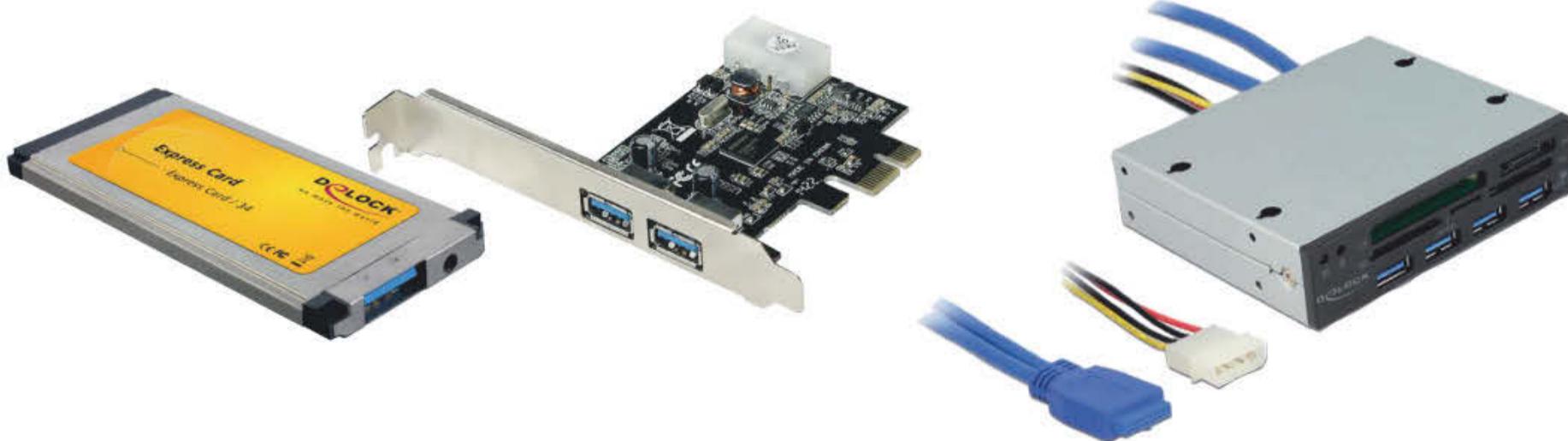
USB 3.0 in old PCs and notebooks

USB 3.0 plug-in cards

There are affordable PCIe plug-in cards (on the right) for old PCs. Older business notebooks can be upgraded to USB 3.0 via Express Card (on the left)

Turbo interfaces on the housing

USB 3.0 card readers for desktop PCs can be connected internally as well as on retrofitted add-on cards, providing you fast USB ports



You can determine the RAM to be installed using the CPU-Z tool ("SPD" tab). The dropdown menu "Memory Slot Selection" shows how many RAM slots the computer has and how many modules have been allocated. In order to add or replace the modules, it is best to enter the manufacturer and model details of your motherboard or your notebook into the compatibility search provided by a RAM manufacturer (Crucial and Kingston, for example, offer such a search) and then order the corresponding memory. The mounting is simple, just clip the modules into the slots of the desktop PC. While doing this, ensure that the locking levers of the slot are open and that the slot notches are aligned correctly. In notebooks, the RAM is placed under a bottom flap or below the keyboard – you can find the replacement instructions in the manual or often on YouTube under the respective model description. After a system restart, open the Windows "Basic information" ("Control Panel | System and Security | System") using [Win]+[Pause]. The "Installed memory (RAM)" option shows the detected RAM capacity.

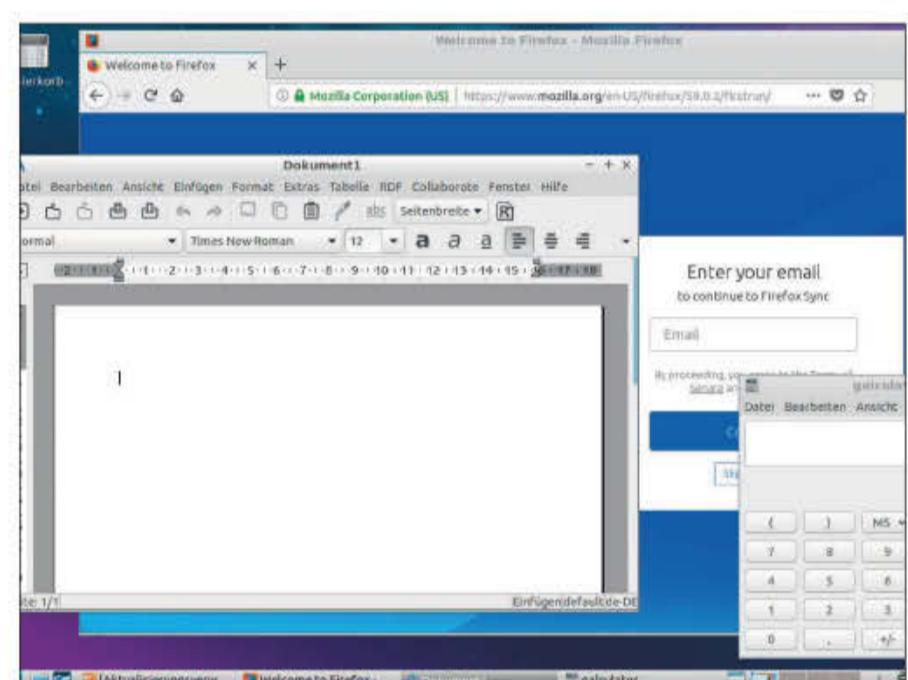
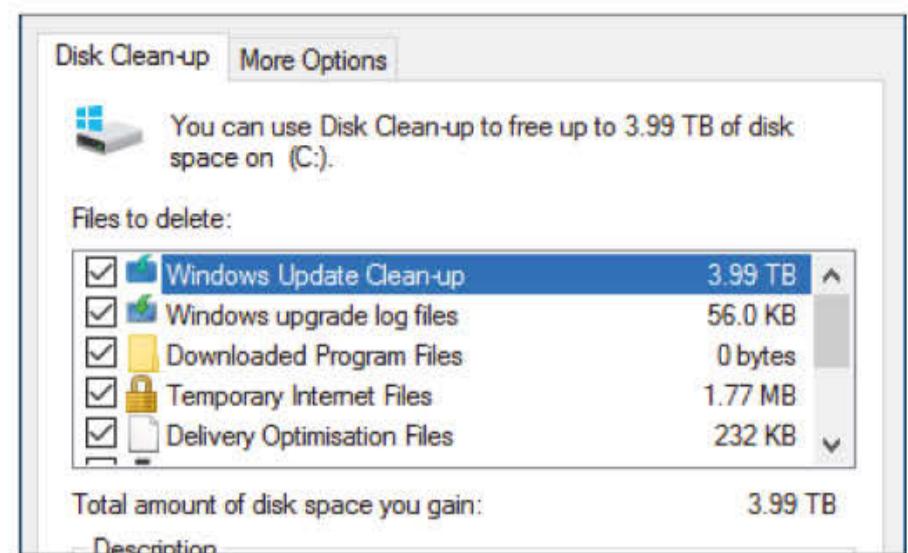
Spring cleaning in Windows

Cleaning up the operating system and system drive can accelerate boot up for a system, release RAM and reduce the potential of conflicts between processes. But, of course, there is always a danger that the system works much worse after this or does not run at all. That - and because the entire task is faster on a computer with SSD and sufficient RAM - is why we recommend that you start this after the hardware upgrade steps. If this goes bad, you can simply re-clone the system from the old hard drive onto the new SSD.

First go to "Control Panel | Programs | Programs and Features" and sort the software by clicking once on the column title "Size". A right click on the respective entry uninstalls unnecessary software. Using the BCUninstaller (klocmansoftware.weebly.com) can also be quite convenient. After this, right-click on your system drive in the Windows Explorer and go to "Properties | Disk Cleanup | Cleanup system files". Usually you can set all check boxes here and start the cleanup with "OK".

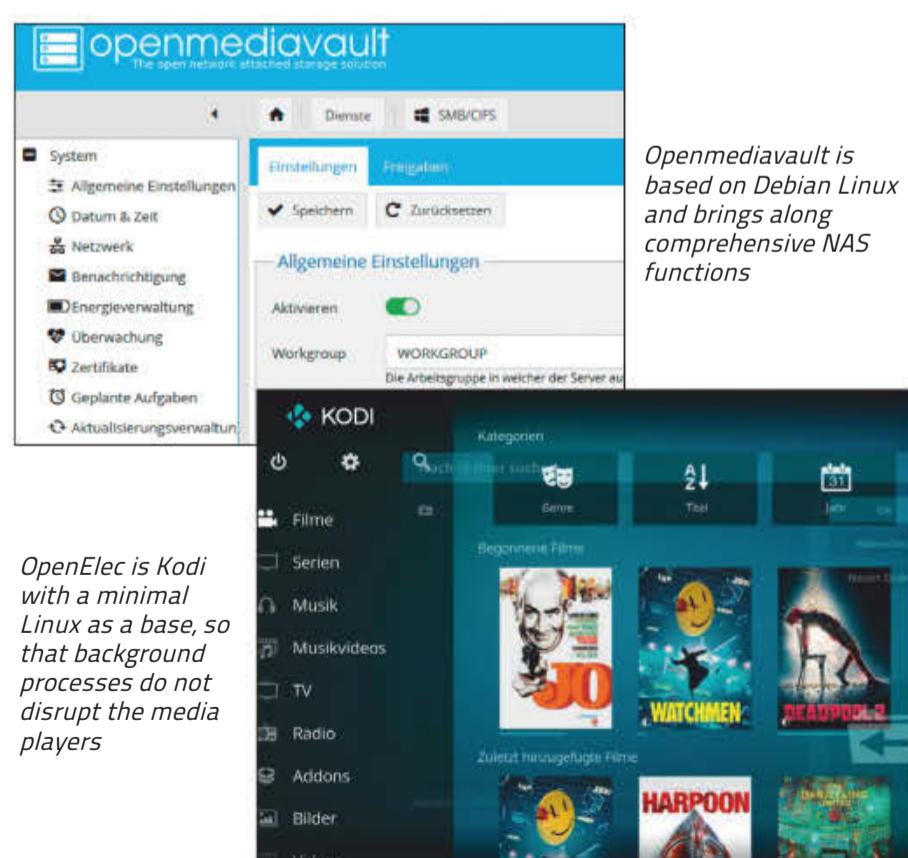
PC as NAS & media player

Older PCs that are too weak as desktops can still offer good service as specialised NAS network storage or as a media player.
 > A network storage only requires a minimal system that allows the configuration via a web interface. Remove all superfluous hardware from an older PC that still runs reliably and has a Gigabit LAN interface. In their place, mount one or more big hard drives and install the NAS system Openmediavault.
 > PCs with a digital graphics output (e.g. HDMI) can be connected to a TV to be used as a media player. You can install media center software Kodi on the existing Windows or replace the OS using OpenElec, a Linux specialised for this purpose.



Lubuntu-Linux: Last resort for old computers

Windows tends to overwhelm old computers which support a maximum of two GB RAM or only have a 32-Bit CPU. Thus, Lubuntu is the only way to run an up-to-date and secure system with such low specs



Repair and revive



Tools

Using a hot-cold compress works best to open glued-together smartphones



1



2

Handling a crack

Sealing display cracks using glue 1 only appears good on YouTube. If replacement is too expensive, a protective glass 2 makes the surface smooth once more



Eliminate contact problems

A cleaning spray like "Contact 60" removes dirt and oxide from connectors, slots, controllers. After that, rinse using isopropyl

The formerly popular CCleaner tool, which identifies and deletes the other hidden space hogs, must be taken with a grain of salt since its last change of ownership; yet you can still make use of the alternative KCleaner (www.kcsoftwares.com/?kcleaner). In any case, a reconditioned computer should run a lot better than before. If the PC only allows 2 GB RAM or does not have a valid Windows license, take a look at Linux. It runs smoothly as a desktop operating system with Firefox and LibreOffice (see previous page) even with meagre hardware features. You can continue to use older computers as NAS network storages or as media player using special Linux distributions (see previous page).

REACTIVATE SMARTPHONE & TABLET

There is no reason why old smartphones or tablets need to end up as electronic waste just because the display has cracks, the battery is not mint-new or there are no system updates. You can often give it a second chance with just a little bit of craftsmanship. The same goes for a smarthome central, learning tablet or bicycle navigation. But small repairs are often required before you can do that. In most cases, this means opening up the device to replace damaged components.

Separate the glued-together and screwed-in parts

Most smartphones and tablets are glued together to ensure protection against water damage and for slimmer designs but a little bit of heat softens up the glue. Instead of using the hot air gun, we recommend the use of hot-cold compresses that you should be able to get from a pharmacy. Once heated up in a water bath or the microwave, they create better heat distribution and you can avoid isolated overheatings. Admittedly, the gel cushions must be heated up to their max limit of approx. 90° C, which requires a sensitive touch if you're using a microwave. Once these have been heated, lift the back panel of your device using a suction cup, then slide a thin piece of plastic like a guitar pick between the edges and the cover. Do not push in it too much so as to not damage any flat-ribbon cables.

If the back panel gives a lot of resistance, then it is probably secured by additional snap-fits or screws. If you do not resort to



Adjust replacement battery

Since it's only identical in structure, the replacement battery (above) fit in instead of the outdated predecessor only after nipping the fastening straps

the customised adhesive sealing at the end of the repair work, you can secure the casing back using all-purpose glue. Unlike superglue, it remains elastic and can be softened again using heat. This is a bit easier with screws; instead of Philips head screws, however, the manufacturers have a penchant for non-standard screw profiles like Pentalobe, Tri-Wing, Torx, etc. If the appropriate tool is not enclosed with the spare part, they can be found in shops that offer corresponding screw drivers. For emergencies, even a filed flat-head screwdriver that fits into the profile will work; by pressing it in and connecting it with the screw head with traction. This trick also helps for worn profiles.

Keep your eyes open while buying replacement parts

Be it eBay, Amazon or Alibaba, you will likely be able to find an allegedly appropriate replacement part for almost each electronic device. But beware that even if replacement battery appears to be a dead ringer for the original, it may give nasty surprises during assembly if, for example, the fastening clips are askew by a few one-tenths of a millimeter. Only buy more expensive replacement parts from dealers that allow a return policy and while ordering from China, take the potential additionally payable customs duties into consideration.

Crack in the display? Make a virtue out of necessity

A cracked display in most cases only relates to the uppermost glass layer, the digitiser, which registers finger movements. Unfortunately, the digitizer and LCD panel are mostly glued to each other. Though it appears easy enough to separate them using heat and acetone from relevant YouTube videos, in reality it is a big mess. First and foremost, you can hardly ever glue together the new digitiser to the LCD in a bubble-free manner using a UV adhesive in the hobby workshop.

We strongly advice against the trick of sealing the cracks using adhesive, like one does for car glass. Even superglue is too thick to permeate into the fine cracks and you will only end up smearing the display with this.

If buying a complete display unit for the good part is not worth the effort any more, then work around it using a design element.

Reparability of current smartphones & tablets

The repair platform www.iFixit.com evaluates all dismantled devices to determine how easy it is to repair them (max. 10 points)

Smartphone	Points
iPhone XS	6
iPhone X	6
Huawei Mate 9	6
Google Pixel 2 XL	6
Google Pixel 2	6
OnePlus 6	5
Samsung Galaxy S9	4
Samsung Galaxy S9 Plus	4
Samsung Galaxy Note8	4

excellently repairable well repairable less repairable
hardly repairable non-repairable

Tablet	points
HP Pro x2 612 G2	9
Acer Iconia One 7	8
LG G Pad 7.0	8
Huawei MediaPad M2	7
Huawei MediaPad T2	6
Sony Xperia Z4 Tablet	5
Samsung Galaxy Tab S3	4
iPad 6	2
Microsoft Surface Pro 5	1

Excerpt, Source: iFixit.com

This is how you can work safely

Even if this "only" concerns low voltages, you should always follow a few precautionary measures.

> **Discharge** You should only open devices with battery left with approx. 10 percent in order to minimise short circuit effects.

> **Eye protection** While working with cracked displays, you should wear protective glasses.

> **Respiratory protection** Only use adhesives or solvents in a well-ventilated location.

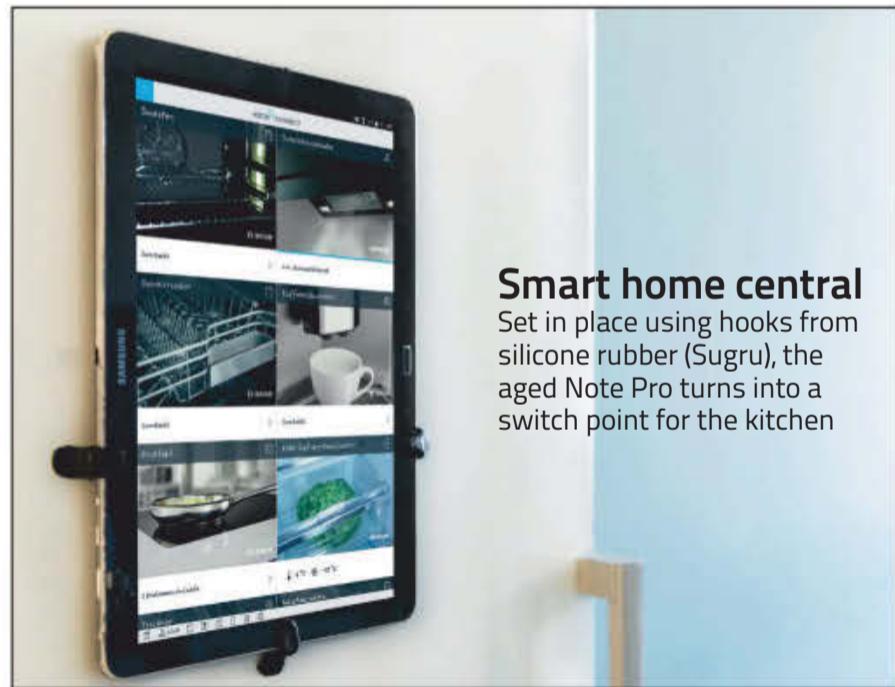
> **Gloves** While cleaning and gluing,

always wear disposable gloves.

> **Insulation** If there is an option, work with an electrically non-conductive tool.

> **Documentation** Save each work step as a photo or sketch. Do not switch seemingly similar screws.

> **Disposal** Old batteries and electronics must be taken to the corresponding collection points and not thrown into the trash.



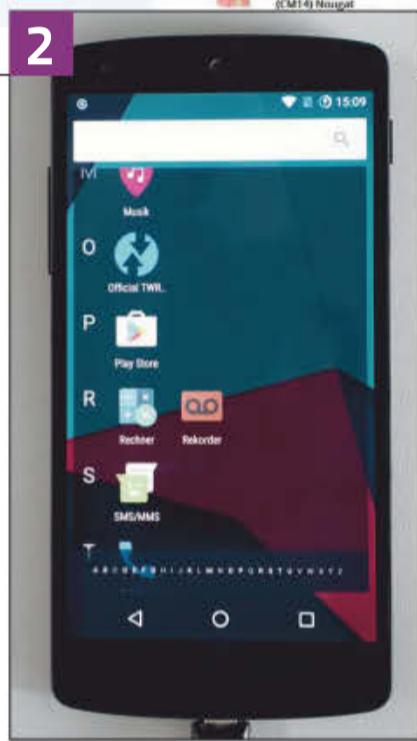
Free Android alternative

The manufacturers stop Android updates after a maximum of three years. Using the LineageOS free operating system, even outdated smartphones remain state of the art.

1 LINEAGEOS ROM

List of Available Android 8.0 Download links of LineageOS 15 ROM for all devices by Android OEMs (Arranged Alphabetically):

- Alcatel: Lineage OS 15 for Alcatel Devices (Android 8.0 Download)
- Android One: Lineage OS 15 for Android One Devices (Android 8.0 Download)
- ASUS: Lineage OS 15 for ASUS Devices
- BLU: Lineage OS 15 for BLU Devices
- Gionee: Lineage OS 15 for Gionee Devices
- Google: Lineage OS 15 for Google Devices
- HTC: Lineage OS 15 for HTC Devices
- Huawei: Lineage OS 15 for Huawei Devices
- LG: Lineage OS 15 for LG Devices (Android 8.0 Download)
- Motorola: LineageOS 15 download (Android 8.0 Download) for Motorola Devices
- Motoblur: LineageOS 15 download (Android 8.0 Download) for Motoblur Devices
- OnePlus: LineageOS 15 download (Android 8.0 Download) for OnePlus Devices
- Oppo: LineageOS 15 (Android 8.0 Download) for Oppo Devices
- Pantech: LineageOS 15 (Android 8.0 Download) for Pantech Devices
- Samsung: LineageOS 15 (Android 8.0 Download) for Samsung Devices
- Sony: LineageOS 15 (Android 8.0 Download) for Sony Devices
- Tecno: LineageOS 15 (Android 8.0 Download) for Tecno Devices
- Ulefone: LineageOS 15 (Android 8.0 Download) for Ulefone Devices
- Wileyfox: LineageOS 15 (Android 8.0 Download) for Wileyfox Devices
- Xiaomi: LineageOS 15 (Android 8.0 Download) for Xiaomi Devices
- YU: LineageOS 15 (Android 8.0 Download) for YU Devices
- ZTE: LineageOS 15 (Android 8.0 Download) for ZTE Devices
- Zuk: LineageOS 15 (Android 8.0 Download) for Zuk Devices



Free and latest

1 LineageOS is available for almost all smartphones in the latest version

2 The installation is elaborate but after it, even an outdated Nexus 5 is up to date again and free from Google's mandatory apps

Device registration

Overview

Device manufacturers work with Google to certify that Android devices with Google apps installed are secure and will run apps correctly. To be Play Protect certified, a device must pass Android compatibility tests. If you are unable to add a Google account on your Android device, your Android device software might not have passed Android compatibility tests, or the device manufacturer has not submitted the results to Google to seek approval. As a result, your device is not Play Protect certified. This means that your device might not be secure.

If you are a user wanting to use custom ROMs on your device, please register your device by submitting your Google Services Framework Android ID (not Settings.Secure.ANDROID_ID or SSID) below. This can be retrieved by using the ADB shell command:

```
$ adb root  
$ adb shell sqlite3 /data/data/com.google.android.gsf/databases/gservices.db "select * from main where name = 'android_id';"
```

Google Services Framework Android ID: REGISTER

Device register
In order to be able to use Google services using the free LineageOS operating system, you must register your mobile device with Google

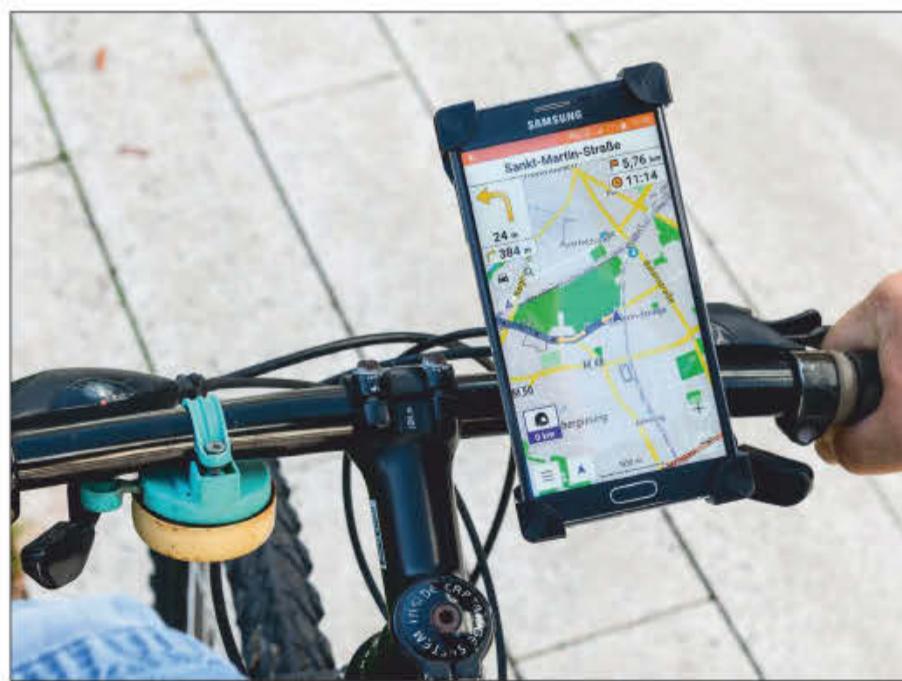
You can stick a screen protector over the screen retroactively to ensure a smooth surface and at least prevent further damage.

Battery rejuvenation

After three years, even a well-maintained battery deteriorates. While buying a replacement battery, pay attention not just to the dimensions but the correct voltage and capacity as well. A crimped battery can burn off the smartphone due to internal short circuits. This is why you should always start the replacement when the battery is considerably discharged (approx. 10%). In most cases, batteries are glued to the housing. But for few devices like iPhones or Sony Xperias, you can pull out the big piece of adhesive using plastic flaps under the battery. As an alternative, you can make sure of hot gel cushions too. Only use plastic tools to lift the battery from its storage to prevent short circuits. Also, avoid bending it and dispose it off as soon as possible at the nearest battery collection centre.

A new system on old devices

Apple provides its iPhones with updates for up to six years, which Android users can only dream about, but LineageOS offers an alternative operating system for Android users. What started off as an Android modification from a failed start-up, has been continued by a developer community. At the time of writing this, there were images of LineageOS 15.1 (corresponds to Android 8.1 Oreo) for all common smartphones and tablets on the website lineageos.org. The installation is time-consuming but is described step-by-step in English on the Wiki homepage. Firstly, you must redirect the device into root mode and use the manufacturer-dependent bootloader. Using the Recovery tool, the Lineage image is written on to the flash memory. ☐



Pathfinder in the city jungle
Thanks to a number of bicycle apps, the outdated smartphone works better as a bicycle computer. A powerbank in the handlebar bag ensures enough power for longer rides



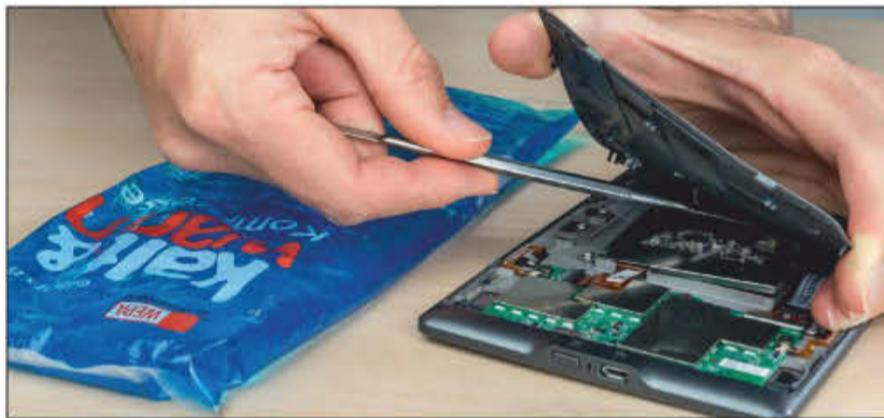
Television - Work around the HDMI defect

If the central elements like display or connectors are broken and the guarantee is invalidated, the TV is often a piece of scrap. But if only individual parts, such as the HDMI inputs, are broken, connect the devices via a HDMI-to-Component adapter at the component input. Likewise, you can replace a defective tuner with an external model.

Wireless Physical Interface ath1 [2.4 GHz TurboQAM] - QCA9984 802.11ac	
Physical Interface ath1 - SSID [dd-wrt] HWAddr [B0:B9:8A:51:90:53]	
Wireless Mode	<input type="button" value="Client Bridge (Routed)"/>
Wireless Network Mode	<input type="button" value="NG-Mixed"/>
Channel Width	<input type="button" value="Dynamic (20/40 MHz)"/>
Wireless Channel	<input type="button" value="Auto"/>
TurboQAM (QAM256) support	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Wireless Network Name (SSID)	dd-wrt
Wireless SSID Broadcast	<input checked="" type="radio"/> Enable <input type="radio"/> Disable

Wireless router - Reuse via firmware

Many old wireless routers can be updated to the latest software status using an OpenSource firmware like those by dd-wrt.com or openwrt.com. You can turn them into repeaters, access points or as VPN routers. Compatible devices, installations and configurations are described on the websites mentioned.



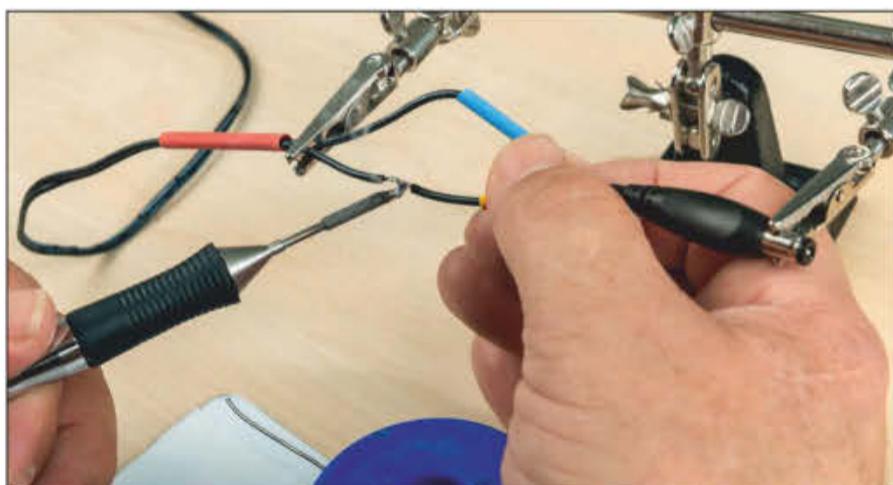
Ebook reader - Battery replacement for Kindle

Replacement batteries can be found by a web search for "[Reader model] replacement battery". You can heat an Amazon Kindle 4, for instance, using a heated gel cushion, but you have to pry it forcefully in order to open the glued back panel, especially on the glued-on battery. You can find detailed instructions for almost all common readers on YouTube.



Robot vacuum cleaner - Complete overhaul

The fine particulate air filters of many robot vacuum cleaners can often be cleaned using a canister vacuum cleaner, but they will get worn out at some point. Manufacturers or third-party manufacturers offer spare parts like brushes and battery packs in online stores. Battery packs can simply be exchanged by unscrewing the base plate in many models.



Power supply - Adjust replacement connectors

Connectors for all performance classes can be found in shops, but they would often be unsuitable. You must also take polarisation into account while soldering (see label plate). Connect the wires to each other in a transposed manner, but make sure to first cover each wire as well as the entire cable with insulating shrink tubing.



Device cable - Encase cable breaks

In frequently used cables, the insulation at the connector junction often breaks. Such breaks can be repaired using Sugru (www.sugru.com). Malleable like playdoh, this silicon rubber hardens in a couple of hours upon contact with air. It is also a handy aid for sealing holes.



All Power To The Algorithms?

Artificial intelligences are interfering in our life to an ever greater extent. This is problematic. Algorithm ethicists are therefore working on a long overdue update of the society

By Felix Knoke

When a Tesla sports car in autopilot mode crashed into a road divider on 23rd March 2018, a new and astonishingly complex question of fault quickly arose: Is an algorithm responsible for the death of a human? The reconstruction of the accident later revealed that both Tesla's autopilot system and the automatic braking system broke down. Shortly before the crash, the car even accelerated above the speed limit and drove towards the concrete barrier. So, was the software to blame? The driver did not have his hands on the steering wheel at the time of the accident, the impact attenuator of the road divider was still damaged by a previous accident and the road was in an overall poor condition. All of that contributed to the tragic end. And what part does Elon Musk and the Tesla Marketing department play in this, who advertised better cruise control than intelligent autopilots and thus feigned more autonomy than what

the accident victim should have expected from his car?

Implicating solely the algorithm won't make it any easier, but quite the opposite. Software is always faulty. But what if its developers had done everything correctly, yet the software drew its own conclusions, which were ultimately wrong due to faulty or contradictory data? What if all the systems involved worked properly, but failed because of complex and barely straightforward interactions? So how are the driver's relatives, the legal system that strives for balance and justice, and the ethical framework of the world supposed to deal with this? Algorithms cannot bear the blame, right?

Algorithms are supposed to simplify our lives by automatising decisions and assessments. If they tend to do so independently of human input and according to self-developed yardsticks, they are called smart or intelligent agents or artificial

intelligences. But regardless of whether they are smart or not, algorithms are not just tools with which human will is put into action. With their speed and autonomy, they create entire categories of new problems, obliterate and disguise the power of attributability and put traditional concepts of guilt and responsibility to the test. This is why incidents like the Tesla crash and the subsequent heated media discussions are so important: They indicate that society is facing new types of problems due to new technologies, which can simply no longer be solved technically.

Far-reaching judgments about people

Algorithms are shaping our lives more and more. We often do not even notice how. They determine whether and on what terms we ought to get loans, which news we should see on the Internet first (or not see at all), which people we should meet and whom we should get into bed with. They are supposed to be advantageous even when planning wars and on the battlefield – whatever that is supposed to be mean. They shape our view of the world, our friendships and careers. And woe betide us if we become a delinquent, or get sick or poor. Algorithms can then make far-reaching conclusions about our lives: unplaceable, uninsurable, danger of recidivism, not creditworthy. These programs are probably even right about their assessments. But who can know that? How and on what data basis the algorithms make decisions is often secret corporate knowledge or not always comprehensible even for insiders. Even the decisions of artificial intelligences are notoriously difficult to understand. Many mistakes occur furtively, insidiously, and some of them do not even have a concrete victim. Who watches over the algorithms and is responsible for them when they make a mistake? The country, the algorithm protection association, every man for himself? Good luck with the amateur proof that the black box is wrong.

Algorithms do not even have to be particularly complex or smart to cause problems. It is enough that they are fast. This was experienced by thousands of Australians who receive social welfare benefits, whose subscription rights were supposed to be assessed by an algorithm starting from July 2016. In case of discrepancies, the system automatically sent requests to give account for it online. Those who did not comply with it received a reminder from a debt collection agency. This system made 20,000 interventions each week, the same number of interventions that the officials previously used to make over the span of one year. Unfortunately, the system did not work properly, and tens of thousands received an undue warning. To their misfortune, they got completely overloaded by complaints, their objections remained stuck in the work pile-up for months and the alleged liabilities remain unchanged. Later, an investigation came to the conclusion: "Many of the problems described could have been prevented through better project planning, engagement, change management and communication." "Months after the faulty sending, all reminder notices were invalidated until the final clarification of the question of guilt." But the damage was done.

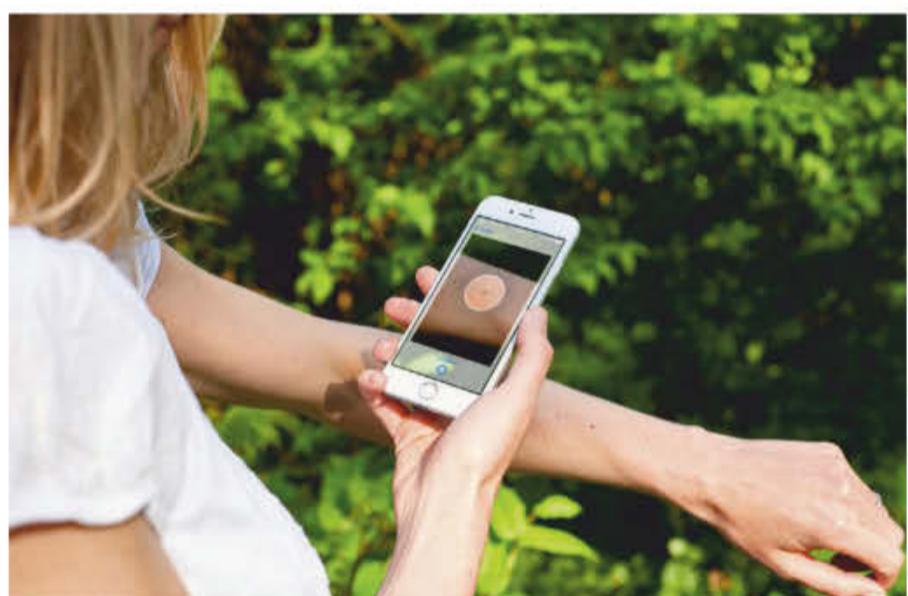
Who would still trust such a system that has evidently succumbed to its own obsession of efficiency? Intelligent

Photos: monsitrj/Getty Images (main image); Last stop, now / CC_BY_2.0 (top right); Devrimb/Getty Images (bottom right)



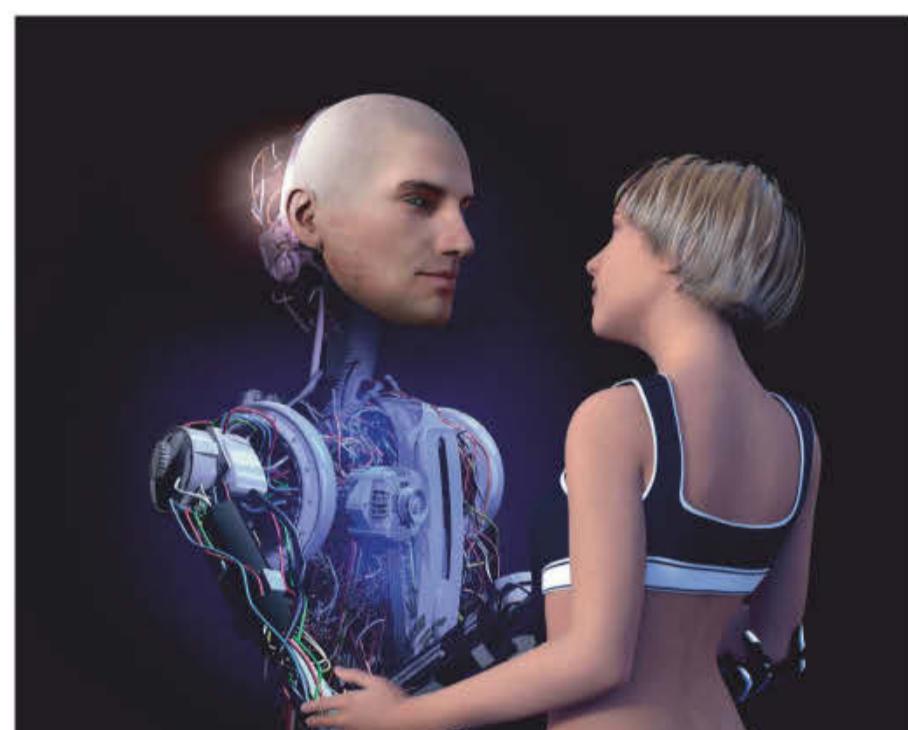
Protest against surveillance

Protests against a facial recognition system at the Berlin Südkreuz railway station, which automatically searches for criminals in the flow of pedestrians. Error rate: 20 per cent, but "Project successful".



Diagnosis or bug report?

AI apps such as SkinVision can recognise skin cancer with the use of a cell phone camera. This is cheaper, simpler and faster than visiting the doctor – but what if the app makes mistakes unknowingly?



Against robot dignity

Is a limit crossed when computers mimic feelings and emotions? Does human dignity suffer from that?

INTERVIEW

"Algorithms can be rescaled for better or for worse"

Carla Hustedt works for the Bertelsmann project, "Ethics of Algorithms". She calls for transparency and an extensive debate

> What is an algorithm?

Initially just a guide to solving a problem. But we are looking at the whole algorithmic decision-making process: Code, data, training data, embedding, operational purposes and their interpretation by humans.

> This is a big task!

You do not need a wide-ranging discourse about each algorithmic system. However, when algorithms make or support decisions that directly affect people's lives, then you need more control of systems and a wide-ranging discourse about their use. Since there is a risk, algorithms can be rescaled for better or for worse. An algorithm can make an extremely large number of decisions and more consistent ones in less time. This is a chance to achieve efficiency, but it also means that it can make more mistakes in a shorter amount of time, which affects a great many people. We should be prepared for that.

> What makes an algorithm ethically good?

There is not one solution to the problem, but a number of

approaches that are promising when combined together. In addition to a wide-ranging discourse and effective monitoring, access to non-discriminatory data is also incredibly important. We also need a variety of algorithmic operator models and systems to avoid monopolies. A society must decide what makes an algorithm a good algorithm. The transparency about the use and objectives of the systems are therefore so important. There won't be any informed debate without them!



The OpenSchufa project by AlgorithWatch wants to decode the Schufa algorithm by means of crowdsourcing and thus make its basis of evaluation transparent and public

algorithms are interfering in our life to an ever greater extent. The further the digitalisation of society progresses, the more the starting points for the automation of social processes and private concerns exist. Artificial intelligences evaluate us, analyse our behaviour and make decisions for and about us. This is how they change the public and the private sphere. Their promise is a smoother, simpler, more efficient world. It is not only business models that rest on this hope, but entire societal models like Smart City, Industry 4.0, the Internet of Things, or any work of the future (or even its abolition). Anything that can be automated, should be automated. However, are the decisions of algorithms really always better or is one just transferring responsibility to the machine? After the initial hype, it now involves the legitimacy of digitalisation.

The automated public sphere

Algorithms can solve problems just as well, if not better, as creating new ones. As software products, they are prone to error, accelerate human mistakes and put the prejudices of their developers and trainers into action. The understanding of the responsibility and dangers of algorithmic automation is maturing, but at a slow pace. In the process, the analysis of these new types of problems and their reciprocal effects of an algorithmically accelerated world is important. Only those who understand the functioning and effect of algorithms can increase their undisputed benefits and reduce their harmful potential.

This includes accepting their social embedding. Algorithms are not just neutral tools; they reflect the assumptions of their developers and in the case of machine-trained "intelligent agents", they reflect biases in their training data. This problem is occurring in many ways at present, especially as racism and sexism manifested in code. For example, Amazon discovered in 2015 that their recruiting algorithm favoured men in its search for suitable candidates. Not because they were objectively more suitable, but because a gender-biased recruitment policy had been practiced in the previous decade. Amazon wanted good employees and not just men, and consequently revised the system. But the doubts still remained. As announced in October of 2018, the program was discontinued at the end of 2017.

Especially in the US, where the question of ethical algorithms is currently being discussed from the Silicon Valley to the White House, civil rights activists are increasingly discovering racist biases in supposedly neutral evaluation algorithms and artificial intelligences. For example, in the US judiciary system, the probability of recurrence of prisoners and defendants is being calculated using various algorithms, and their supervision degree or even their period of imprisonment is measured accordingly. But because such systems are based on historical sentencing and investigative data, they also reflect their racist biases: People of colour are given a worse prognosis than an otherwise equally assessed white person simply because of the colour of their skin. And because these judgments are later entered into the training data, the historical racism becomes firmly established in the allegedly neutral code. Such feedback loops – from algorithm to the society and back to the algorithm – are a problem. They

exceedingly manifest themselves in publicly used artificial intelligences and image recognition algorithms.

Earlier this year, Joy Buolamwini, who is a researcher based at MIT, demonstrated as to how biasedly computers see the world. She confronted three facial recognition systems by IBM, Microsoft and Face++ with portrait photos of men and women of diverse skin tones and compared their recognition rates. The result: All the three AIs unfailingly recognised men better than women and people with a white skin tone better than people with a darker skin tone. Women with darker skin tone were the least recognised ones. In a world where facial recognition systems are increasingly determining whether law enforcement agencies classify someone as suspect or access systems classify someone as legitimate, this can mean a "technical disadvantage" for people of darker skin tone and women. "Today, AI-driven automation determines who gets fired, hired or promoted, who gets a loan or is insured and how long one needs to stay in prison," wrote the study leader on the project website. Biases in the databases of the decision and evaluation algorithms have a very real impact. "Automated systems are not inherently neutral. They reflect the priorities, preferences and prejudices – the coded gaze – of those who have the power to shape artificial intelligences." It is an important requirement for there to be more diversity and awareness in development departments so that such mistakes do not happen. Racism and sexism make it easy to see how biased the algorithms can be. But the same applies to other known and unknown social deformities. Algorithms have an impact on the world, which everyone needs to be aware of.

Good in a non-moral sense

Awareness building is also a concern of the Bertelsmann project, "Ethics of algorithms". Project manager Carla Hustedt and her team want to find out what makes up ethically good algorithms and how they can be created and controlled. A key requirement: An impact assessment and tolerability testing for algorithms that could have impacts on humans. As it is done for data protection or construction law, developers should review the goals, desired and undesirable effects, as well as measures in the event of an error, then record them in writing before the project starts. They should also review why a different approach was not chosen. "Here, it is important to not merely identify substantial risks for individuals, groups or society, but to also create a plan for dealing with undesirable consequences in a second stage." Responsible persons should be clearly named and decisions should be made transparent. That way, if something goes wrong, at least things can be verified. Hustedt and her team are currently working on a quality criteria catalogue that is, for the first time, supposed to determine what distinguishes a good algorithm from a bad one on the basis of such requirements, and this includes the entire process of development - from planning to deployment. This possibly also includes an instruction leaflet for training data of self-learning systems, in which the origin and possible biases of the data, their validity and scope and their defensibility are specified. Even such simple rules could significantly improve the algorithm quality (and give supervisory authorities starting points

Should robots be punished?

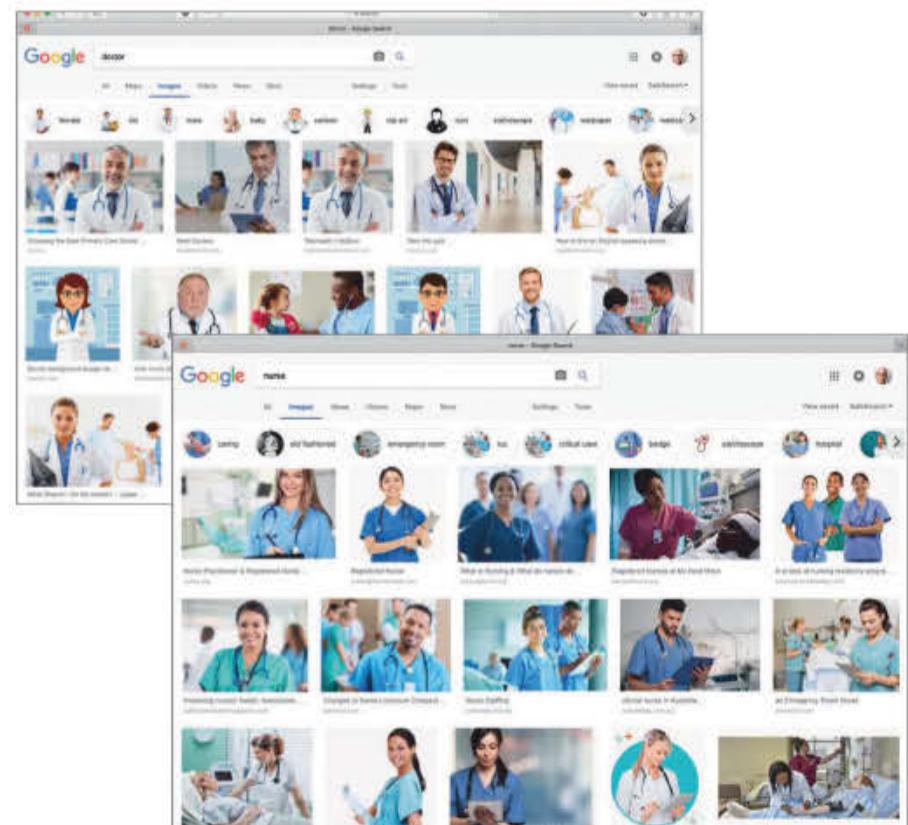
What is supposed to be done if an autonomous system commits a crime? Ying Hu, a law graduate student at Yale Law School, argues that one holds robots and the like responsible for their behaviour, at least if they can independently justify, execute and communicate their moral foundations. That may sound bizarre. But if you attribute at least a little bit of responsibility to an intelligent system, it can be better integrated into the existing legal system. Thus, criminal law could fulfil its

function, punish unlawful behaviour and alleviate emotional damage to the victims. Ying Hu also suggests punishments where robots marked as criminals could be "punished" by reprogramming, retiring or shutting them down. The enforcement could even be left to the victims and that way, provide them satisfaction. A positive side effect is that the legal system can demonstrate its efficiency even in case of new challenges.



Old-fashioned algorithms

The Google image search reproduces sexist stereotypes: The gender neutral search criteria lead to clearly two-part results. Does that reflect reality or does it construct it?





Killer parasites

The US military is experimenting with self-organising drone swarms. Can computers be entrusted with killing?



New type of accident

The American Traffic Safety Authority NTSB is still investigating the crash of a Tesla sports car in autopilot mode



AI propaganda

AI can – even automatically – help to fake reality, as is shown here with the manipulation of videos

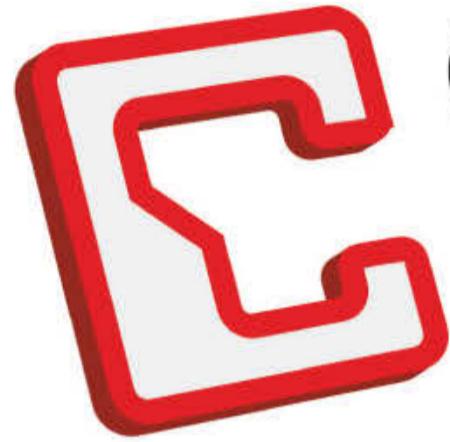
for their instruments). There are a lot of good ideas on how algorithms can be made more reliable, better and more open to criticism. The central concern here is responsibility. Algorithms are software products and thus, they suffer from typical software problems: Programming errors, operating and input errors, interpretation errors, data errors and dwindling performance. Increasing complexity and diminishing transparency, grinding maintenance or changed demands make these problems more difficult. Algorithms can become obsolete and yet be irreplaceable because they are rooted too deeply in other systems or they can no longer be maintained by anyone.

There's a three-headed flamethrower behind you!

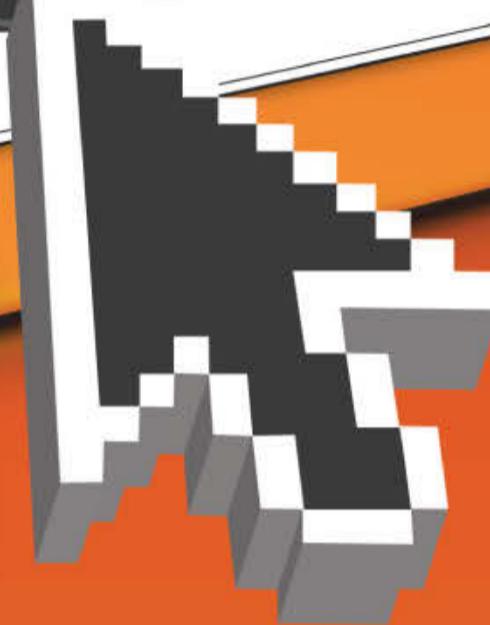
Algorithms can, however, pose a risk even beyond these problems, such as if they are designed as a threat. In February, two dozen AI researchers warned against this in a study, "The Malicious Use of Artificial Intelligence: Forecasting, Prevention, and Mitigation". According to the scientists, autonomous, intelligent agents could increase existing threats by enabling much larger, more targeted attacks, whose implementation by conventional means would be too costly. For instance, much finer and larger-scale spear-phishing attacks could be performed by artificial intelligences, which collect useful information about their targets independently, embody real people through speech synthesis, or automatically identify and attack targets for hacks. Attack drones and autonomous weapon systems could be used or autonomous cars could be hacked and brought to collision. Apart from that, autonomous Internet surveillance systems could collect and analyse massive data, spread targeted propaganda, and also conduct social engineering attacks on a large scale. Al's could automatically analyse human behaviour, moods, as well as beliefs, and utilise or manipulate them in a targeted manner. Lastly, self-learning systems are a target for more subtle manipulations – AI being a victim is also a potential danger. "These concerns are of capital importance in the context of authoritarian states, but they can also undermine the ability of democracies to conduct truthful public debates." The conclusion of the researchers is that artificial intelligences will play a prominent role in the security landscape of the future. There are plenty of dangers, but more action can and should be taken for their control and mitigation.

The computer says: No!

In comparison to such analyses, some scare tactics act like distraction manoeuvres, such as when Elon Musk warns against Al's as "much more dangerous than nuclear weapons". The stories of malicious superintelligences are meant to distract from the banal software reality in which cars rush on their own into road dividers. The actual dangers (and benefits) of algorithms, intelligent or not, are more subtle and diverse. First of all, it is about incorporating a new technology with social consequences into society itself. The really hot question will only come into play when this basis is created: How much autonomy, and thus, responsibility do we want to leave to the machines? ☐



Subscribe



Log on to our website and subscribe to **CHIP** today!

[www\(chip.com.my](http://www(chip.com.my)

12 issues + 4 FREE issues at RM188.80 only

or

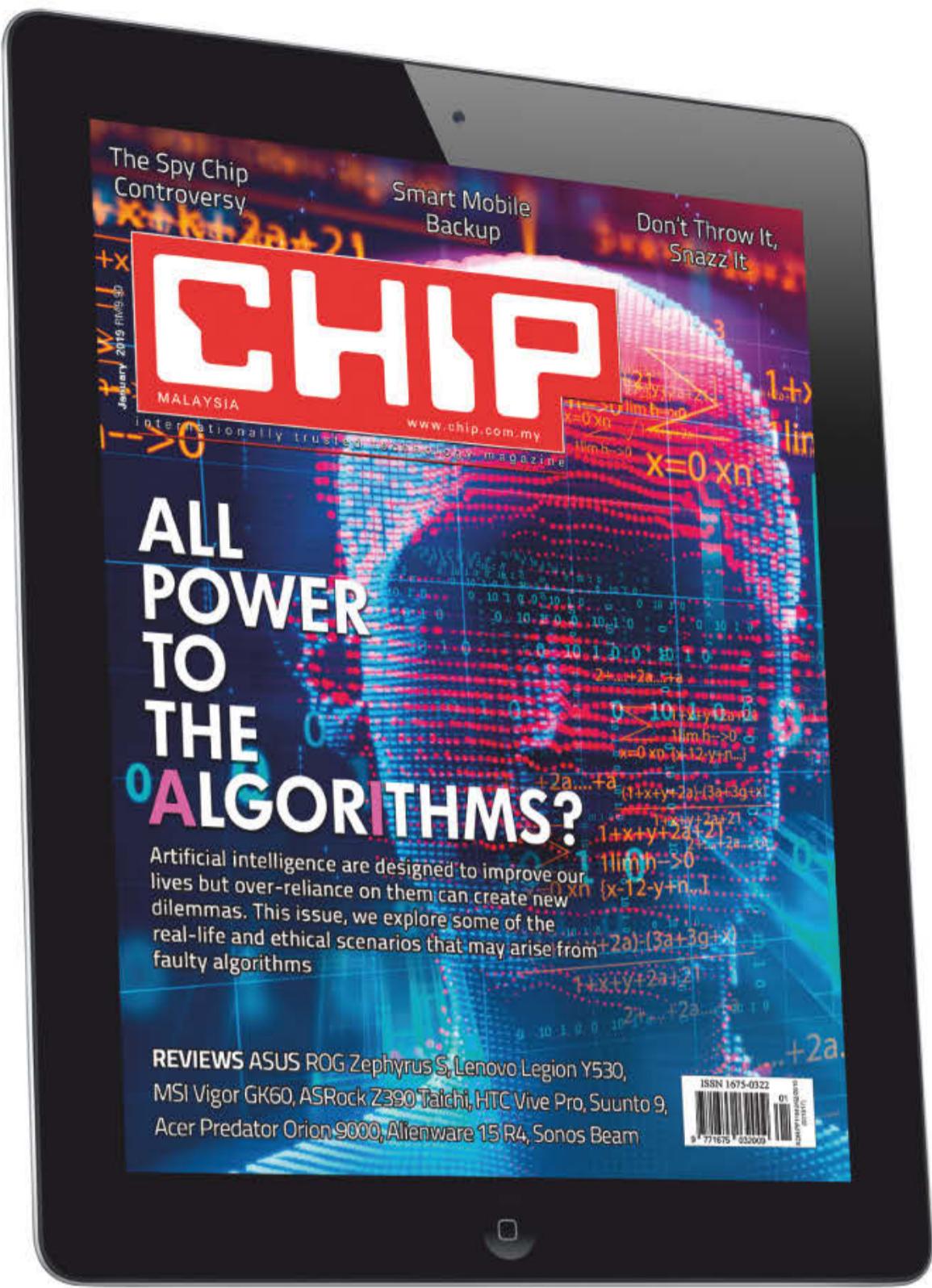
6 issues +2 FREE issues at RM59.40 only

Why subscribe?

- Never miss an issue. Every copy delivered to your doorstep!
- Value for money. Receive free issues when you subscribe!
- No extra cost. Free postage and delivery!
- Money back guarantee. Not a happy reader? Write to us within 60 days and we'll refund you for all un-mailed issues!



**YOUR
FAVOURITE I.T.
&
TECHNOLOGY
MAGAZINE IS
ALREADY
AVAILABLE
DIGITALLY!**



Here's how to order CHIP Malaysia to go :-

Step 1: Download Zinio

CHIP Malaysia will be available on Zinio, one of the most popular digital newsstands on the internet. They have an iOS app as well, which is where CHIP Malaysia is sold.

Tap on the App Store icon on your iPad and search for 'Zinio'. The first entry should be Zinio Magazine Newsstand & Reader. Click on it and wait for it to be downloaded and installed.

Step 2: Creating a Zinio account

You will need to have an account with Zinio to download magazines from its store. Zinio will keep a record of what you've purchased and if you restore your iPad, all you need to do is to re-download your content. The best part of all? Re-downloads are free!

You can create a Zinio account from the app itself or log on to www.zinio.com to do it. All you need is an email address and a password.

Step 3: Download CHIP Malaysia

Launch Zinio and you'll see three tabs at the bottom. Click on the 'Shop' tab and search for 'CHIP Malaysia'. When you see our cover, that means you're close to getting your hands on CHIP Malaysia's iPad magazine.

You have the option to get the newest issue or subscribe to 12 issues. Select an option and pay for it via PayPal or Credit Card.

Step 4: Read

Once that is done, tap 'Library' at the bottom bar and you'll see the cover of the issue you bought. Tap on it and you're done! Zinio will let you read while it downloads the remaining pages. Enjoy!

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



Components & Peripherals

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

Peripherals

Razer Basilisk
Razer Huntsman

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



CONTENTS



1	HTC VIVE Pro	078
2	Lenovo Legion Y530	079
3	Wiko Sunny3 Plus	080
4	Acer Predator X27	081
5	ASRock Z390 Taichi	082
6	Alienware 15 R4	083
7	ROG Zephyrus S	084
8	ASUS Zenfone Max Pro M2	085
9	ViewSonic VX3258-2KC-MHD	086
10	MSI VIGOR GK60	087
11	ASUS ZenBook 14	088
12	ASUS ROG Delta	089
13	JOI 11 PRO	090
14	Canon PIXMA E4270	091
15	Acer Predator Orion 9000	092
16	HTC U12 life	093
17	Samsung Galaxy Watch	094
18	Sonos Beam	095
19	Suunto 9 Baro	096
20	Klipsch R5 Wireless	097

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

Be Rad!

With the announcement of the new RX 590 series, ASUS quickly chimed in with their iteration of the new graphics card. Equipped with ASUS ROG's cutting-edge thermal solutions and patented Wing-blade fans, the card will run cool even under high pressure. The fans are even dust-resistant, making it a reliable choice for a long lasting card. ASUS has also added RGB capabilities to the card, allowing you to customise and sync it up with Aura Sync for all other ASUS devices.

ASUS ROG Strix RX 590

Contact: ASUSTek Computer Malaysia

Phone: (03) 2131 6650

Info: www.asus.com/my



The Master Of Boxes

CoolerMaster has announced yet another new chassis in the MasterBox MB530P. It features three tempered glass panels on the sides and front of the chassis, allowing you to show off your RGB build easily. Speaking of RGB, the chassis comes with three pre-installed 120mm addressable RGB fans on the front panel. It can fit up to a total of six fans, supports top and rear water cooling blocks, and has enough room for graphic cards of up to 410mm and 180mm PSU.

CoolerMaster MasterBox MB530P

Contact: Ban Leong Technologies Sdn Bhd, Build Technology Supply Sdn Bhd

Phone: (03) 7956 6300, (03) 7955 3699

Info: www.coolermaster.com



Spin Up Your Life

When it comes to Chromebooks, Acer is still top dog, selling plenty of Chromebooks even in 2018 alone. This time, they are introducing a new Acer Chromebook Spin 13 that is equipped with an Intel Core i5-8250U processor, 8GB of RAM and 64GB of internal storage. It comes with a 13.5-inch Quad HD IPS display, weighs only 1.58 kg, and has a decent amount of ports for all your other devices. It even has a microSD card reader built-in.

Acer Chromebook Spin 13

Contact: Acer Sales and Services Sdn Bhd

Phone: 1 800 88 1288

Info: www.acer.com.my



SUPER SPEED

GeIL just announced some new additions towards their ever popular memory kit series, the SUPER LUCE RGB SYNC series, with some new modules of varying capacities and speeds. They will be coming in: 16GB (8GBx2) 4,133MHz at CL19-19-19-39, 16GB (8GBx2) 3,600MHz at CL16-18-18-36, and 16GB (8GBx2) 3,200MHz at CL14-14-14-34. The SUPER LUCE RGB SYNC comes in black or white, and the RGB light bar is bright, so you can easily show off your RGB memory kit. The kit comes in two editions, SUPER LUCE RGB SYNC Intel Edition and SUPER LUCE RGB SYNC AMD Edition.

GeIL SUPER LUCE RGB SYNC

Contact: Imedia (M) Sdn Bhd

Phone: (03) 8024 2455

Info: <http://www.geil.com.tw/home>

**Water-cooled Motherboard**

When GIGABYTE announced the WATERFORCE GPU a while back, it didn't take them long at all to incorporate it into their motherboards, and this is where the GIGABYTE Z390 AORUS XTREME WATERFORCE motherboard comes in. As the name suggests, it supports the 9th and 8th gen of Intel processors, as well as up to 4 DIMMS for a maximum of 64GB. It is Intel Optane Ready and has 16 Phase IR Digital VRM design, along with a plethora of other GIGABYTE technologies. The RGB FUSION and Smart Fan 5 can be seen on the motherboard as usual, but the main draw of this motherboard is its AIO Monoblock. It even has USB TurboCharger to charge your mobile device.

GIGABYTE Z390 AORUS XTREME WATERFORCE Motherboard

Contact: Nation-Tech Sdn Bhd, Ban Leong Technologies Sdn Bhd

Phone: (03) 4280 6636, (03) 79566300

Info: www.gigabyte.my

Think Extreme

Lenovo is back at it again with another new ThinkPad in the ThinkPad X1 Extreme. Designed to be used by power users that are usually on the go, the X1 Extreme is equipped with some top of the line specs and a few configurations. One of the configurations is as follows: Intel Core i5-8300H processor, 8GB of RAM, 256GB SSD, and NVIDIA GeForce GTX 1050 Ti GPU. As for the display, you have a 15.6-inch Full HD IPS display that is Anti-Glare. If you wish, you can even configure it to have a 4K touchscreen display. According to Lenovo, this device can last up to 15 hours.

Lenovo ThinkPad X1 Extreme

Contact: Lenovo Technologies Sdn Bhd

Phone: 1 800 80 8575

Info: www.lenovo.com/my/en





Be A Trekking Pro

The recently announced Casio Pro Trek WSD-F30 is Casio's latest smartwatch that is meant to be used for those living an active lifestyle. It offers three varying modes for different uses. For example, in Multi-Timepiece Mode it will display time and sensor data such as Barometer, Compass and Altimete. For those that are venturing up mountains, don't worry. According to Casio, this watch can last up to 1 month in this mode. The Pro Trek WSD-F30 also runs on Wear OS and features a Colour OLED display and a monochrome LCD. It is also MIL-STD-810 rated, with water resistant up to 5-bars.

Casio Pro Trek WSD-F30

Contact: Casio Malaysia Sdn Bhd

Phone: (03) 2724 1253

Info: www.casio-intl.com/my/en

Hard Hard Drive

When it comes to external hard drives, most people want it to be able to transfer data quickly and have sturdy builds as it is more prone to drops and shocks. The Apacer AC731 is an ideal solution for that. It has two capacities of 1TB and 2TB, and utilises SuperSpeed USB 3.1 Gen1 to transfer data of up to 5Gbps, or up to 480Mbps on USB 2.0 mode. The drive is IP68 rated, and shockproof of up to 122cm. It only comes in Black, so you can still take it for business trips without feeling too gaudy.

Apacer AC731

Contact: Apacer Technology Inc.

Info: www.apacer.com



Lite & Bright

The Mi 8 Lite is one of Xiaomi's latest device and it comes packing a colourful punch with an eye-catching Aurora Blue colour variant. It is powered by a Qualcomm Snapdragon 660 processor with two options of 4GB RAM + 64GB storage or 6GB RAM + 128GB storage. As for the display, it features a 6.26-inch display with a 19:9 aspect ratio. To keep the device powered through the day, it has a 3,350mAh battery that can be charged quickly thanks to QC3.0 and USB Type-C. Lastly, it has a dual rear camera setup of 12-megapixel + 5-megapixel and a 24-megapixel front camera.

Xiaomi Mi 8 Lite

Contact: Era International Network Sdn Bhd

Phone: (03) 8074 7776

Info: <http://www.mi.com/my/>

Pocket Sized Camera

When all you need is something small for the big events in life, the DJI Osmo Pocket could just be all you need. This handheld camera has a built-in 3-axis stabiliser, giving you blur-free shots with its 1/2.3-inch sensor that has a 80-degree FOV. It also has an ISO range of 100 – 3,200. Besides that, the Osmo Pocket can record 4K Ultra HD and supports microSD cards of up to 256GB. All that is built into a tiny device weighing only 116g! The Osmo Pocket also has a variety of accessories that can alter how you use the Pocket to fulfill your shooting needs.

DJI Osmo Pocket

Contact: ECS Astar Sdn Bhd
Phone: (03) 6286 8222
Info: www.ecsm.com.my



Light & Speaker Combo

If you've thought of wanting to combine a light source and speakers in one device, then the new LSPX-S1 from Sony is just the device you're looking for. It is a Glass Sound Speaker with a built in LED filament that can mimic a candle, offering a soft candle light for ambient lighting, all while its built-in 50mm woofer and glass tube tweeter offer clear highs, strong midrange and deep bass. This means that you can have a romantic candlelit dinner with relaxing music, all on one device. It could also double as a table décor as it does not look like your regular Bluetooth speaker.

Sony LSPX-S1

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



More To See

The newly announced Acer ED323QURA is a 31.5-inch 2K Monitor equipped with 144Hz of refresh rate. This means that it is an ideal monitor for watching movies and gaming, especially with the 144Hz of refresh rate. It also pairs well with AMD graphics cards with its FreeSync capability. To help with reducing eye strain, other technologies such as Acer VisionCare and BlueLight Shield were also added so your eyes will not be strained even after a long gaming session.

Acer ED323QURA Monitor

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

Small And Versatile

The Rayo S1 is Canon's latest portable projector that offers a WVGA resolution (854 x 480) and can project up to 84-inches. To project on the Rayo S1, all you need is a USB-capable device or through Bluetooth. The projector only weighs 235 g, allowing you to carry it anywhere in your bags or even pockets without much issues. It is also equipped with a 3,800 mAh battery that can keep it powered for up to 120 minutes. If you wish to watch a movie alone, you can also plug in headphones via the 3.5mm jack on the projector, although it does come with a built-in speaker for movie nights.



Canon Rayo S1

Contact: Canon Marketing Malaysia Sdn Bhd

Phone: (03) 7884 6000

Info: www.canon.com.my

Y Not Max?

Announced not too long ago, the HUAWEI Y MAX features a 7.12-inch Full HD+ display, making it one of the largest device from the brand. It comes in two colours of Midnight Black and Amber Brown, and houses a Qualcomm Snapdragon 660 processor, 4GB of RAM, 128GB of internal storage, and a massive 5,000 mAh battery. It runs on EMUI 8.2. As for the cameras, you have a dual rear camera setup of 16-megapixel + 2-megapixel, and an 8-megapixel front camera for all your selfie needs.

HUAWEI Y MAX

Contact: Huawei Malaysia Mobile Hotline

Phone: 1 800 22 0086

Info: www.huawei.com/my



The Dragon Returns

The Sharkoon Drakonia II is the successor to one of Sharkoon's most popular gaming mouse. This time, the new Drakonia II is equipped with a total of 12 programmable buttons and a dragon-like design. It has a max DPI of up to 15,000, has a polling rate of 1,000Hz, and utilises a PixArt 3360 sensor. The mouse is also RGB capable and comes in two colour variants of Green or Black. If you wish, you can also adjust the weight of the mouse by removing the adjustable weight to suit your needs.

Sharkoon Drakonia II

Contact: IDEAL TECH PC Sdn Bhd

Phone: (03) 9202 3137

Info: <https://www.sharkoon.com/>



Master The Cosmos

When it comes to computer chassis, Cooler Master has countless aces up their sleeves, and the new COSMOS C700M from the brand sits atop of the throne. The COSMOS C700M features unparalleled modularity, just like the cosmos. You can configure the layout yourself and the chassis allows you to mount your GPU horizontally or vertically, with Addressable RGB lighting that can be seen on the front panel. As for the side panels, they are curved, allowing you to bask in the glory of your build. It also has numerous ports for your devices. The chassis even allows for open loops for water cooling, so you can customise the build to your liking.

CoolerMaster Master COSMOS C700M

Contact: Ban Leong Technologies Sdn Bhd, Build Technology Supply Sdn Bhd

Phone: (03) 7956 6300, (03) 7955 3699

Info: www.coolermaster.com



Deploy Your Turret

Razer has just announced a new product that is ideal for couch gamers with the introduction of the Razer Turret. Usually, turrets in games allows you to control it from far away, and this could just be the inspiration for the name.

It is a wireless device that features a mouse and tenkeyless keyboard that can be used with your console. The lapboard, as Razer calls it, features chiclet styled keycaps and can register up to 10 key presses at once. As for the mouse, it has a 3,500 DPI Sensor and can last for 40 hours on a single charge. The mousepad of the device is also magnetic, so your mouse will stay on the board without much hassle.

Razer Turret

Contact: Ban Leong Technologies Sdn Bhd

Phone: (03) 7956 6300

Info: www.razer.com

Your Muse On The Go

The Altec Lansing Museo is a portable speaker with a leather handle that allows for easy handling no matter where you go. This speaker has Bluetooth connectivity, so all you need to pair it to your device and your music will be clear and loud, allowing you to share your music at parties or camps. Quick access buttons can be found on the top side of the speaker and if you wish, you can still connect it to your device via the 3.5mm jack. According to Altec Lansing, the Museo has a battery life of up to 10 hours. 

Altec Lansing Museo

Contact: Alcom Networks Sdn Bhd

Phone: (03) 9286 2888

Info: www.myalcom.com.my



HTC VIVE Pro

Price: TBA

Contact: HTC Careline

Phone: 1 800 88 9855

Info: <http://www.htc.com/my-en/>

Screen: Dual AMOLED 3.5" diagonal Resolution: 1440 x 1600 pixels per eye (2880 x 1600 pixels combined)

Refresh rate: 90 Hz

Field of view: 110 degrees

Audio: Hi-Res certificate headset Hi-Res certificate headphone (removable) High impedance headphone support

Connections: USB-C 3.0, DP 1.2

Bluetooth Sensors: SteamVR Tracking, G-sensor, gyroscope, proximity, IPD sensor

Ergonomics: Eye relief with lens distance adjustment, Adjustable IPD, Adjustable headphone, Adjustable headstrap

Performance:



Features:



Design:



Escape Reality

The applications for Virtual Reality is so vast and the technology is going continue to grow. Virtual reality is still relatively inaccessible to the average consumer due to its high cost, but hopefully in the future the cost of virtual reality will drop further so that it'll be more affordable for consumers, which in turn might boost the adoption of virtual reality. Right now, interest in VR is mostly from the architecture and education industry.

Most manufacturers are currently furthering the development of their VR products, with some that have put out more than one revisions of their VR environments. HTC has now released the HTC VIVE Pro, an upgraded set of VR gear that improves on what its predecessor was capable of. The VIVE Pro comes as an all-in-one solution - now with its very own pair of headphones. Additional features that have been added include an extra camera on the visor, improved ergonomics for the headband and visor for increased comfort, as well as an improved screen.

We're lucky to have had the opportunity to experience both the VIVE and VIVE Pro so

we could compare them both. The VIVE is of course priced lower than the VIVE Pro, but overall the VIVE Pro proves to be the better experience. Starting with the optics, the VIVE Pro definitely looks better, and we attribute that to the increased resolution of 2880x1600 and the increased details present the immersive feeling is also increased. With the increase of resolution also came the change from using HDMI connection to a DisplayPort 1.2 connection, so if you want to continue using it with a laptop you'll need to get a miniDP adapter.

The added headphones work in tandem with the VIVE Pro to provide spatial sound. With our small library of VR games we still enjoyed playing games like Serious Sam VR, which was able to take advantage of the spatial audio to point out where the enemies were. The comfort has also increased with the VIVE Pro, thanks to the headband that uses a dial that can adjust the tightness to your liking. One of the biggest changes we like is the reduction of cable clutter, and how the visor is now connected to the link box using just a single thick cable. ☐



An upgraded screen provides better resolution and clarity



Changing the headset to using a screw for tightening the headband is a great idea

+	Overall performance
-	Less clutter
+	Better comfort

None

CHIP CONCLUDES

The HTC VIVE Pro is a step forward when it comes to quality of life. It provides better comfort, better optics, and reduced cable clutter, so we are excited to see further improvements in the future.

By Nixon Ng

Lenovo Legion Y530

Price: RM3,599

Contact: Lenovo Technologies Sdn Bhd

Phone: 1 800 80 8575

Info: www.lenovo.com/my/en

Operating System: Windows 10 Home

Display: 15.6-inch Full HD IPS, up to 144Hz of Refresh Rate

Processor: Intel Core i7-8750H

Graphics: NVIDIA GeForce GTX 1050 Ti

Memory: 8GB

Storage: 1TB HDD + 128GB SSD

Ports: HDMI 2.0, Mini DisplayPort, USB Type-C, 3x USB Type-A, Audio Jack

Dimensions: 365 x 260 x 24.2 mm

Weight: 2.3kg

PCMark 10 Essentials: 7,546

PCMark10 Productivity: 6,202

PCMark10 Digital Content Creation: 5,172

3DMark Time Spy: 2,337

3DMark Fire Strike Ultra: 1,657

Superposition Extreme: 1,234

Superposition High: 3,491

Performance:



Features:



Design:



Value:



Join The Legion

The Lenovo Legion Y530 is a decently sized laptop that aims to deliver power and performance for your everyday tasks. It comes with a unique design that not many laptops in the market opted for – a hinge that is slightly off-edge, along with a webcam that's located at the bottom of the display. The laptop is sturdy to the touch, and oozes quality through its build.

Speaking of display, the display of the laptop is near bezel-less on three sides aside from the chin, that houses the aforementioned webcam and the Legion logo. With the webcam located at the bottom of the screen, you will have to position yourself well when you are video conferencing to avoid people only looking up your nose.

The chassis of the laptop is also unique, sporting a slim design with large vents on the side and the bottom of the laptop. The fan does rev up when you are gaming. But, with the inclusion of Dolby Audio, you can simply drown the noise away with immersive audio. As for the keyboard, it only glows in a single colour of white, so RGB enthusiasts might just have to look elsewhere. But the keyboard is equipped with a numpad as well, and typing on it is fantastic and comfortable.

The display can also be laid down in a 180-degree fashion, but we're not sure what purpose that would serve aside from just because it can do so. Other than that, the display is also equipped with 144Hz of refresh rate, perfect for buttery smooth gaming sessions. To further assist with gaming, the laptop is equipped with a NVIDIA GeForce GTX 1050 Ti, so playing games like DotA 2, CS:GO and not very demanding games will be of no issue. The laptop is built like your average work laptop on the outside, with its sleek and professional look, but under the hood lays a powerful mid-range gaming machine.

With that said, we dove into the world of Overwatch and Witcher 3 on the laptop, and it performed fairly well. Obviously you are unable to play Witcher on a steady FPS when everything is turned up to Ultra, but the 1050 Ti held well in Normal settings. However, for newer games in the future, the 1050 Ti will definitely lose steam over time.

Overall, the Lenovo Legion Y530 is a quality laptop that is business in the front but packs some powerful specs inside. The design of this laptop is unique and professional, without feeling gaudy at all thanks to the exclusion of RGB. ☐



The webcam at the bottom bezel



Can be laid almost flat

+ Design
Display

- Webcam
position

CHIP CONCLUDES

Just like a proper businessman, the Legion Y530 does the job it is set out to do well and goes straight to the point, without unnecessary flair or extra pizzazz.

By Rikko Shim

Wiko Sunny3 Plus

Price: RM249

Contact: Wiko Mobile Malaysia Sdn Bhd

Info: <http://my-en.wikomobile.com/>

Operating System: Android Oreo Go Edition

System on Chip: MediaTek MT6580 (1.3GHz)

Memory: 1GB RAM

Storage: 8GB + 64GB microSD

Display: 5.45-inch FWVGA+TN

Camera: 5-megapixel (Rear) / 2-megapixel (Front)

Battery: 2,200 mAh

Dimensions: 148 x 72 x 9.3 mm

Weight: 175g

Geekbench Core: 437 Single-Core / 1149 Multi-Core

Geekbench Compute: 837

3DMark Ice Storm Extreme: 1990

3DMark Ice Storm Unlimited: 2907

Performance:



Features:



Design:



Value:



It's Always Sunny Somewhere In The World

When it comes to great affordable mobile phones, Wiko is in the forefront of that with a plethora of devices to choose from. With devices to tackle the hip, the business people and even students, there's a place for every Wiko device, and the new Sunny3 Plus is no different.

The Sunny3 Plus comes with a large 5.45-inch display with an 18:9 ratio, allowing you to watch your YouTube videos in its fullscreen deliciousness. But we've noticed a few issues with the display. It utilises a TN Panel, and that means viewing angles will not be great, and under bright lights, you'll easily catch your own reflection.

The phone runs on Android Oreo Go, and that means that apps like YouTube and so on will take less space on your phone and require less to run. This also means that the phone will be running smoother and even takes less data, a definite boon. The phone works without much issues and could play older games or new games that are less demanding on the graphics side of things. For day-to-day use, it is definitely

usable. Although you can't multi-screen two apps at the same time, you still won't have too much delay or lag when switching apps.

For the camera side of things, it is packed with a 5-megapixel rear camera with a 2-megapixel front shooter. When trying to take pictures with the rear camera, it will focus on faces, without the ability to manually focus. The front camera does allow you to manually focus and adjust the brightness as well, which definitely helps when taking wefies and selfies.

The phone does come with the benefit of having a 3.5mm jack and a replaceable battery. Yes, you heard it right, a phone with swappable battery in 2018. Simply take off the back cover and you can slot in a fully charged spare battery without any issues.

From our experience with the Sunny3 Plus, we do believe that the phone could function pretty well as a secondary phone or an office phone, as it can take two SIM cards at the same time and features a removable battery. ☺



The back of the Sunny3 Plus, with unique grooves that makes it easy to hold



Removable battery with two SIM slots and microSD slot

Price
+ Removable battery

Display

CHIP CONCLUDES
A super affordable device for the budget conscious and also a good option as a secondary device.

By Rikco Shim

Acer Predator X27

Price: RM9,999

Contact: Acer Sales and Services Sdn Bhd

Phone: 1 800 88 1288

Info: www.acer.com.my

Panel Type: AHVA IPS

Display Size: 27-inch

Resolution: 3840 x 2160

Connectivity: 1x HDMI 2.0, 1x DisplayPort 1.4, 2x USB

3.0, 1x Audio-in, 1x Headphone jack

Refresh Rate: 144Hz

Response Time: 4ms

Viewing Angle: 178°(H), 178° (V)

Dimensions: 629 x 445 x 347.7 mm (with stand)

Weight: 4.77kg

Performance:



Features:



Design:



Value:



King Of The Hill

Back in IFA 2018, Acer showcased a bunch of fancy new Predator gaming products. One of it is perhaps the most feature-packed gaming monitor available now - the Predator X27.

The Predator X27's appearance alone is imposing enough and is surely what younger gamers would call 'cool'. It has a V-shaped base already attached to a stand, which is in turn pre-attached to the large 27-inch display unit. The entire monitor has a matt finishing that is free from fingerprints and annoying reflections.

When we opened the box, the entire monitor is already pre-assembled with the stand attached to the display unit. That's great for people who want to pull this out of the box, plug it in and get to gaming straight away. However, you do have to screw on the side flaps and attach the top cover manually, should you want to use them.

The display unit is fairly thick, since it not only houses an Nvidia G-Sync chip inside, but also two 7-watt speakers. There's no ultra-thin bezels on this display but the Predator X27 is mostly meant to be used solo, so it's not a big deal. Another thing to note is that the stand and base are made of sturdy metal, which makes this a rather heavy monitor.

Fortunately, there's a handle on the top of the stand for easier transportation if necessary. Besides that, this stand also has tilt, swivel, and height adjustment for better ergonomics. If that's not good enough for you, you can detach the stand and VESA mount it on a more flexible stand. An adapter is required for this so Acer included it inside the box.

The visual performance of this monitor is top-notch, delivering solid brightness thanks to HDR10, enhanced contrast through the use of full array local dimming technology, and wide colour gamut of about 99% Adobe RGB. However, you would have to do some calibration manually if colour accuracy is important for you, since the colours lean towards cooler side. When we ran some of our usual games, the resulting visual output had a lot of colour vibrancy, detail and contrast to it.

Although advertised as 4K 144Hz, the Predator X27 will only run at around 98 Hz refresh rate at 4K. But you can still enjoy games at 4K 60FPS with no screen tearing thanks to G-Sync. As for the covering flaps, they don't look useful at first but they reduce glare around the edges and create a sort of pseudo feeling of tunnel vision, which we feel adds to the visual immersion.



You can use the handle on the stand to make it easier to carry



The side flaps and top cover seem silly at first, but they do help reduce glare

+ Stand
Visual performance

- Price

CHIP CONCLUDES

Easily one of the best in class when it comes to features and performance, but that price tag puts it out of reach for many.

By Matthew Yap

ASRock Z390 Taichi

Price: RM1,030

Contact: AMT PC Distributors Sdn Bhd, Sun Cycle Sdn Bhd

Phone: (03) 3344 1124, (05) 322 5531

Info: www.asrock.com, www.cycle.com.my

Socket: LGA 1151

Chipset: Intel Z390

RAM Slots: 4 (Dual-channel)

Memory: 4200+/4133/4000/3866/3800/3733/3600/3

200/2933/2800/2666/2400/2133 MHz DDR4

I/O Ports: 1x PS/2, 2x Gigabit LAN, 1x HDMI, 1x

DisplayPort, 2x Wireless Antenna, 1x USB 3.1 Gen1

Type-C, 3x USB 3.1 Gen1 Type-A, 2x USB 2.0, 5x Audio

port, 1x Optical (SPDIF), 3x PCIe 3.0 x16, 8x SATA 6Gb/s, 3x M.2

PCMark 10 4,448

PCMark 10 Essentials 6,387

PCMark 10 Productivity 5,608

PCMark 10 Digital Content Creation 6,670

Performance:



Features:



Design:



Value:



Overclocking Adept

late 2018 hasn't been great for Intel. The Z390 has been less than impressive, but luckily the motherboards themselves remain really good products. From ASRock, we got one of the brand's top models when it comes to motherboards.

The Z390 Taichi is a stylish motherboard, with its silver-black colour scheme and angled lines that will appeal to gamers. It's a full ATX board packed with a lot of features that are immediately apparent. You have gold connector pins, high-quality nichicon caps, shielding for the audio chip, and more.

Starting from the top, you'll find the four DIMM slots on the right. There is an extra 4-pin connector for CPU to go with the standard 8-pin near the top left, providing smoother and increased power delivered to the CPU for enhanced overclocking capability. It also has a 12 power phase design, which gives more stability when overclocking. And if that's not enough, the Hyper BCLK Engine II below the CPU socket gives you a wider range of base clock frequencies to choose from, allowing you to further fine-tune the system.

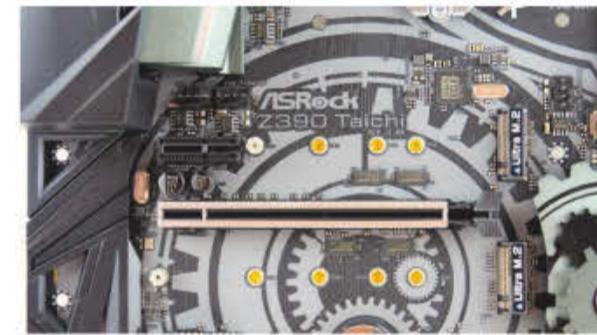
There are other components as well, including three NVMe M.2 slots (the third one

has a heatsink), three PCIe x16 slots reinforced by metal, a shielded audio chipset that has an amplifier chip, and a few headers for RGB LED strips. Additionally, there's a header for chassis with front USB Type-C port, handy for VR headsets.

This motherboard is suitable for larger PC chassis, due to having as many as six 4-pin connectors for chassis fans. It also has two connectors for CPU, with one that can be used for a water pump too. Another useful connector is the 5-pin one that can be used for a Thunderbolt 3 add-on card.

The back I/O is quite luxurious too, sporting dual Gigabit Ethernet ports, a 2T2R wireless antenna that supports dual-band 802.11ac, and a USB Type-C, along with the other more standard I/O.

Overclocking with this motherboard is quite simple and often you can just leave the voltage setting at auto. But since we wanted to try fine-tuning it, we played around with 1.30 to 1.35 volts and found this range to be what you want to use. We only managed 4.8-GHz on our Core i7-8700K with a stock fan, so more efficient cooling like an AIO LCS is required for getting higher clockspeeds. ☐



High-speed NVMe SSD support, reinforced PCIe slot, and a special BCLK chip - this board is packed with features



Gold caps for the audio may not really offer tangible improvements, but they'll definitely last long

+ Stable overclocks
Plenty of features

- None

CHIP CONCLUDES

This motherboard is packed with features and is great for overclocking.

By Matthew Yap

Alienware 15 R4

Price: TBA

Contact: Dell Asia Pacific Sdn Bhd

Phone: 1 800 88 0301, 1 800 88 2888

Info: www.dell.com.my

Operating System: Windows 10 Home

Processor: Intel Core i9-8950HK

Graphics: NVIDIA GeForce GTX 1080 Max-Q

Memory: 16GB DDR4

Storage: 1x 256GB SSD, 1x 1TB HDD

Input/Output: 1x Gigabit LAN, 1x HDMI, 1x mini Displayport, 1x audio/mic combo jack, 2x USB 3.1 Type A, 1x USB 3.1 Type C, 1x Thunderbolt, 1x Alienware Graphics Amplifier

Dimensions: 305 x 389 x 25.4mm

Weight: 3.5kg

PCMark 10 4,657

PCMark 10 Essentials 8,814

PCMark 10 Productivity 6,513

PCMark 10 Digital Content Creation 4,777

3DMark Time Spy 4,593

Performance:



Features:



Design:



Out Of This World

Gaming has come a long way from the past, where all your parents want you to do is to stop playing games and to finish your homework. Now, all over the world, gaming has become the latest phenomenon. Colleges and universities are starting to provide gaming related courses, especially in the esports category, as it's one of the fastest growing trends in the world. But all forms of gaming rely on how powerful your hardware is, whether it's a smartphone, console or computer.

We remember the days when Alienware was THE gaming brand to look out for; when you wanted a powerful gaming machine, Alienware was where everyone looked for. Fast forward to the future, Alienware dropped off the radar for quite a bit until they returned with Dell. And now we have the Dell Alienware 15 R4. If you like gaming then you have a whole lot in store for you if you own one of these.

This notebook sports a powerful Intel Core i9-8950HK processor that can be used for more than just gaming. Sure, with a powerful processor you get better gaming

performance, but the i9-8950HK is great for processor intensive tasks like using Handbrake or rendering. The 6-cores will come in handy if you use the Alienware as a workstation. Paired together with the i9 processor is a NVIDIA GTX 1080 with Max-Q Design. Essentially Max-Q allows manufacturers to place higher-end cards into thinner chassis. This is to keep the body of the notebook sleeker than it usually would be, but at the cost of slightly lower performance.

When it comes to size, the notebook is relatively thick and heavy, but considering all the hardware that's under the hood, the encumbrance is understandable. There's also a lot more space for cooling to work with, which can be considered a good thing as well. But the important question is, does it game well? We can answer your question through the relatively good scores we got in our benchmarks, and from our experience playing games like Overwatch, Monster Hunter World, and Dying Light at their highest settings - all managing over 60fps without a hitch. ☺



Can't go wrong with LED's lining the side of the laptop



Keyboard layout is a bit compact so will take a bit of time to get used to

+ Performance
Build quality

- Heavy

CHIP CONCLUDES

The Alienware 15 R4 is a powerful gaming notebook that can handle the latest games with ease. You can still carry it for short distances in a backpack despite its weight and size, but it's not something you'll want to carry about when you commute.

By Nixon Ng

ROG Zephyrus S

Price: RM7,999
Contact: ASUSTek Computer Malaysia
Phone: (03) 2131 6650
Info: www.asus.com/my

Operating System: Windows 10 Home
Processor: Intel Core i7-8750H
Graphics: Nvidia GeForce GTX 1060
Memory: 16GB DDR4
Storage: 512GB SSD
Input/Output: 1x USB3.1 Gen2 Type-C, 1x USB3.1 Gen 1 Type-C, 1x USB3.1 Gen2 Type-A, 2x USB 2.0 Type-A, 1x HDMI 2.0, 1x 3.5mm jack (audio out + mic)
Dimensions: 360 x 268 x 14.95 mm
Weight: 2.1kg

PCMark 10 4,648
 PCMark 10 Essentials 8,210
 PCMark 10 Productivity 6,651
 PCMark 10 Digital Content Creation 4,991
 3DMark Time Spy 4,013
 3DMark Fire Strike Ultra 2,763
 3DMark Fire Strike 10,474

Performance:
Features:
Design:
Value:



Big Power In A Small Body

When ASUS launched the ROG Zephyrus in 2017, we got to see something that's innovative again for the first time in years. Of course, the first Zephyrus had some flaws, so how does its successor and younger sibling fare?

The new ROG Zephyrus S is a sleek metallic beauty clad in black. It has an ultra-slim body that is really light, yet maintains good build quality. In terms of style, it definitely scores high with its pixel-dot lit ROG logo on the lid, thin display bezels, and an RGB-backlit keyboard.

Having three USB Type-A ports and two Type-C ports is a good combination for a gaming notebook, especially since the one on the right side supports DisplayPort 1.2 and Power Delivery. Of course, you can also use the HDMI 2.0 port at the back for video output. Another good thing about having Type-C ports is that you can use VR headsets on this machine. The only thing we wish wasn't left out was an SD card reader.

When you open the lid, you'll find a display with very thin side and top bezels. You'll also find that the keyboard is right below near where a user's palms would usually be, while

the trackpad and mouse buttons are on the right of the keyboard.

There are a few pros and cons with this design, of course. For one, the PC components are towards the upper part, which ensures that the heat is away from the user's palms. However, this also makes the keyboard and trackpad slightly awkward to use so you might want to consider getting a wrist rest.

This notebook does get warm when it's running games, but the fans can ramp up quickly to reduce its temperature. If you use Turbo mode, you likely won't even feel the heat. But that, in turn, makes the fans very noisy. Fortunately, you can switch modes by pressing the FN + F5 keys, so you can quickly swap from Silent to Gaming mode when needed.

The desktop class Nvidia GeForce GTX 1060 was more than capable of handling most AAA games without too many compromises in graphical fidelity. But depending on the game, you'd have to switch graphical presets to have frame rates around 60FPS. In addition, its display has above average brightness and colour, which is obviously great for games. Audio wise, it has a good balance of treble and bass, though the latter isn't as punchy as we'd like.



The keyboard position keeps your palms away from the heat, but is awkward to use



This Type-C port supports Power Delivery, so you can fast charge your devices

Thin and light
144Hz display
Good audio

Loud fans

CHIP CONCLUDES

Performs well in overall performance while delivering good video and audio quality, making it a better purchase option than its predecessor.

By Matthew Yap

ASUS Zenfone Max Pro M2

Price: RM849

Contact: Dynamics Distribution Sdn Bhd, ECS Astar Sdn Bhd

Phone: (03) 8024 2100, (03) 6286 8222

Info: www.asus.com/my

Operating System: Android 8.1

System on Chip: Qualcomm Snapdragon 660

Memory: 4 GB

Storage: 64 GB (microSD up to 2TB)

Display: 6.3-inch FHD+

Camera: 12+5MP Rear, 13MP Front

Battery: 5,000 mAh

Dimensions: 157.9 x 75.5 x 8.5 mm

Weight: 175g

Antutu: 118,629

PCMark for Android: 5,811

3DMark Ice Storm Extreme: Max

3DMark Sling Shot Extreme: 1,210

Performance:



Features:



Design:



Value:



The Prodigal Son Returns

Earlier this year, the ASUS ZenFone Max Pro M1 was released and it brought great value and performance at reasonable prices. Not only that, the 5,000mAh battery that came with the small phone provided enough battery life to last 2 days and more. The only downside was the software issues, with the biggest problem being the way its camera somehow gaining new problems after new updates were released to fix other problems.

Now ASUS has returned with the ASUS ZenFone Max Pro M2, aimed to provide the perfect experience the M1 almost did. The M2 comes with an upgraded all-screen high-res display with FHD+ resolution. The display is also protected by Corning Gorilla Glass 6 for incredible durability. Whilst on the back is a brand-new Wave-finish with a 3D-curved glossy design that provides a nice curved back for comfortable grip.

On the inside is a Snapdragon 660 with either 4GB or 6GB of RAM and 64GB of

storage. Also, you no longer have to worry about using up a SIM card slot, as there's now a dedicated slot for your microSD card. When used on a daily basis, the M2 does everything smoothly and fluidly with no lag or stutter. It also retained the large 5,000mAh battery we all have come to love. In addition, the M2 is lighter than the M1 at only 175g.

Finally, ASUS has heeded the words of the people, and have used a Sony IMX486 sensor for its rear 12+5MP dual cameras. With the new sensor the camera's performance is now exactly what we hoped for, doing great in low light conditions. The M1 would take about a second or two for a picture to be taken, but on the M2 you can rapid-fire shots as you please. If you're more of a selfie person, then you can use the front 13MP camera. The front camera sports a Real-time Beautification feature that allows you to see the three levels of beautification as you are taking the shot.



The camera which was quite a letdown on the M1 is incredible now on the M2



The new 3D-curved body with a Wave-finish look is just amazing

+ Incredible value
+ Performance
+ High battery life

- None

CHIP CONCLUDES

The ZenFone Max Pro M2 provides everything the average Joe would ever need: solid performance, strong battery life and a good camera, all at an affordable price.

By Nixon Ng

ViewSonic VX3258-2KC-MHD

Price: RM1,899

Contact: Servex (Malaysia) Sdn. Bhd., Achieva Technology Sdn Bhd
Phone: (03) 8024 6688, (03) 7955 1768
Info: <http://ap.viewsonic.com/my/>

Panel Type: MVA

Display Size: 32-inch

Resolution: 2560x1440

Connectivity: 2x HDMI, 2x DisplayPort, 1x

Headphone jack

Refresh Rate: 144Hz

Response Time: 5ms

Viewing Angle: 178°(H), 178° (V)

Dimensions: 713 x 491.6 x 215.2mm

Weight: 5.8kg

Performance:



Features:



Design:



Value:



Enjoy The View

4K resolution is taking the world by storm, with TVs taking advantage of the high resolution to display incredible levels of detail on screen sizes as large as 50 to 65-inches. Even smaller monitors the size of 27 to 32-inches can enjoy the increase in detail that comes with the higher resolution. But in between there's also 2K resolution, or more commonly known as 1440p, usually found only on PC monitors.

The ViewSonic VX3258-2KC-MHD is one of these so called 2K monitors, and it comes at a time where people are getting used to larger displays. Having so much real estate means there's so much more you can do. With the large 32-inch display and the 1440p resolution, you can open multiple programs, documents and spreadsheets, and place them comfortably around your desktop so you can see each of them clearly.

The panel used is an MVA panel, which is likely what most VA panels out on the market are, because the older VA panels

come with limited viewing angles. But the MVA panel that comes with the VX3258 has great viewing angles that can almost rival IPS panels. It also comes with a 144Hz refresh rate and 5ms response time for gamers out there. To get the best out of that high refresh rate, the monitor comes with AMD FreeSync as well.

On the back you'll find two HDMI and DisplayPort ports, which you'll have to use to get the best performance out of the monitor in tandem with AMD FreeSync. What also comes with the monitor is a set of built-in dual stereo speakers, which should be suitable for regular use if you're not too fussy. When it comes to usage, the VX3258 displays crisp and clear text with vibrant colours, and the 1800R curved design is pleasing to the eyes. Gaming wise the 144Hz and AMD FreeSync combine together to give smooth and fluid gaming. You'll need a strong graphics card to also push the 1440p resolution, but the requirement is lower than for 4K. ☐



The usual variety of display inputs but with an added miniDP

+ 144Hz
Great image quality

- None

CHIP CONCLUDES

Grab the VX3258-2KC-MHD when you need a larger display but not in the need of 4K resolution, since 1440p is a great resolution to work with and costs less.

By Nixon Ng

MSI VIGOR GK60

Price: TBA
Contact: Mediaforte (Malaysia) Sdn Bhd
Phone: (03) 7960 6868
Info: my.msi.com

Keyboard Switches: Cherry MX Red

Roll-over: N-Key

Size: Full-size

Dimensions: 440 x 134 x 42 mm

Weight: 1.05kg

Performance:



Features:



Design:



The Vigorous Gamer

Gaming can sometimes get Vigorous and some of us can start sweating while gaming even when in an air-conditioned room. With all the key presses that go on while gaming, you'd need a reliable keyboard that won't fail on you when it counts. The go-to keyboard these days are, of course, mechanical keyboards, and for good reasons. Mechanical keyboards are generally more durable and have a hefty weight that keeps it from moving around the table.

MSI has been going hard on the gaming bandwagon, and they're doing a stellar job at giving what the gamers are asking for. But with the MSI VIGOR GK60 keyboard, would this be the case? Let's dive right into it, shall we? The MSI VIGOR GK60 is a mechanical keyboard sporting Cherry MX Red linear switches, which means the switches have no click or tactile feedback other than the clack of the keycaps when you bottom out. Cherry MX Red switches have been touted as "the" switch for gaming, because of its low actuation point allowing for quick and rapid keypresses.

But what makes a gaming keyboard, a "gaming keyboard"? Back in the day, gaming keyboards would have profiles, macro keys, or LCD screens providing certain information. But these days a well-built keyboard that has features a gamer would like is enough. RGB is one of the trends that has been taken the peripheral market by storm, at the chagrin of many of us who think RGB might have stunted the innovation and evolution of peripherals. Of course, we have nothing against LED lighting.

The single colour red LED on the GK60 is simple but gets the job done, providing different presets of patterns and intensity. Gaming at night? Not a problem! Performance wise, the GK60 is a solid keyboard, with each keypress feeling solid. We have experienced keyboards where the keys felt flimsy even with similar switches, but the GK60 is in no way flimsy. The body isn't too heavy, so we don't think the switches are plate-mounted. But overall, the keyboard is a solid piece of peripheral that'll find a spot on your table and stay there. ■



Floating keycaps has always been a niche of ours that we liked



Metal keys for gamers that can be replaced with spares

+ Well-made

- Only red LED

CHIP CONCLUDES

If you're looking for your first mechanical keyboard or upgrading from a keyboard that seems to have some funky switches, the MSI VIGOR GK60 is a choice you can look into.

By Nixon Ng

ASUS ZenBook 14

Price: TBA

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

Operating System: Windows 10 Home

Display: 14-inch Full HD

Processor: Intel Core i5-8265U

Graphics: NVIDIA GeForce MX150

Memory: 8GB

Storage: 512GB PCIe SSD

Ports: HDMI, 2x USB Type-A, 1x USB Type-C, microSD Reader

Dimensions: 319 x 199 x 15.9 mm

Weight: 1.19kg

PCMark 10 Essentials: 6,985

PCMark 10 Productivity: 6,417

PCMark 10 Digital Content Creation: 3,317

3DMark Time Spy: 939

3DMark Fire Strike Extreme: 1,278

3DMark Fire Strike: 2,593

Performance:



Features:



Design:



Fill Your Life With Zen

A new ASUS ZenBook landed onto our desk this month, and it is the latest device within the ZenBook series. The ZenBook 14 comes with a unique design that is a little smaller compared to regular laptops. As it is smaller, you can slot this easily into messenger bags or maybe even a large purse. It still manages to pack a 14-inch display along with a tenkeyless keyboard. The ScreenPad of the ZenBook Pro makes a tiny cameo on this laptop as well, but dubbed as NumberPad.

By holding a finger on the NumPad icon on the top right of the touchpad, you can bring up the NumberPad, essentially a lit up numpad on the touchpad. Of course, you can still use the touchpad while the virtual numpad is lit, but you will now also be able to tap on the virtual keys to key in numbers. This means that you can type out numbers without reaching for the keyboard, ideal for busy accountants or jobs that require you to type/count numbers on a daily basis. You will need to bring up the calculator app if you wish to perform calculations, of course, and it should be noted that you can't use the virtual numpad if the touchpad is locked. As most people will eventually use a mouse, having a touchpad on without accidentally moving the mouse cursor would be a great combo to have.

As mentioned, the laptop does pack a

14-inch screen and this is achieved with a near bezel-less sides and bottom. The top of the display is slightly thicker to house a webcam, and this is loads better compared to bottom placed webcams. When the laptop is opened, the display will lift up the laptop slightly to improve its cooling. The display is great to watch movies on, with colours that pop and text that are clear as day. This is also enhanced by the ASUS Splendid technology.

The keyboard is pretty comfortable to type on and powering on the laptop is snappy. Before the display is fully lifted, the display is already on and ready to go. However, with the power button just above the backspace button, you could accidentally send the laptop to sleep mode and potentially lose your work progress. Aesthetically, having all the keys in one area may make it visually pleasing, but functionally it could spell disaster. While we are on the topic of aesthetics, the laptop also sports the usual ZenBook swirl design on the front of the laptop, giving it a touch of premium to the overall look of the laptop. But it is still a fingerprint magnet and will require you to wipe it down every now and then.

The ZenBook 14 is a lightweight laptop with a unique size that can allow it to be used in smaller tables and so on. With the addition of the NumberPad, accountants and jobs that require you to key in numbers can rejoice. ☺



The NumberPad can be turned on by just holding the button on the top right



Power button located just above the backspace and besides the delete button

+ Design
NumberPad

— Location of
Power Button

CHIP CONCLUDES

The ZenBook 14 is a great laptop that is lightweight and comes with a good design that allows it to be used even in smaller areas. The many ASUS technologies included can also be useful in improving your workflow.

By Rikco Shim

ASUS ROG Delta

Price: TBA

Contact: ASUSTek Computer Malaysia

Phone: (03) 2131 6650

Info: www.asus.com/my

Driver size: 50mm

Impedance: 32 Ohms

Frequency Range: 20 ~ 40,000 Hz

Ports: USB Type-C

Connectivity: USB Type-C, USB

Others: Aura Sync, Additional Hybrid Earpads, USB

Type-C to USB cable, Detachable microphone

Dimensions: 170 x 70 x 160 mm

Weight: 387 g

Performance:



Features:



Design:



Take The Delta Head On

The ASUS ROG Delta is the latest headset in their peripheral line-up, and it comes with a few new additions that will make most gamers happy. However, upon unboxing the headset, you might realise that something is quite different, and that is with the shape of the headset. Instead of your regular rounded or oval size, the Delta is designed with a somewhat triangular shape that ASUS dubbed "D-shaped" earcups. According to ASUS, the earcups match the shape of human ears, thus reducing unnecessary contact areas for a more comfortable fit.

The headset is indeed quite comfortable but in our experience, for those with glasses, you will have to sometimes push your glasses back in as the headset somehow pushes them outwards. It'll take some getting used to, but you'll eventually be accustomed to the headset. Other than that, the other thing you'll notice will be the RGB lighting of the headset. It can be configured with ASUS Aura Sync to sync up the lighting of all your other Aura Sync capable peripherals or components, letting them glow together in harmony. You will have to download the ROG Armoury to change up the lighting effects of the headset.

The Delta does require a USB Type-C port to connect to your devices, but luckily ASUS has provided a USB Type-C to USB cable in

the box, so you can still connect it to your consoles or PC without any issues. In the box you can also find an additional pair of ear cushions for you to choose from. We found the hybrid cushions a little more comfortable in the long run as it combines leather and fabric for additional comfort.

On the earcups, you can find a lighting on/off toggle, volume adjustment with mic mute knob and a microphone jack. The microphone of the headset is bendable, allowing you to easily position it however you like. In terms of audio quality, the sound is as you would expect out of a gaming headset with boomy bass and clear trebles. It is by no means an audiophile grade headset, but you can still hear enemy footsteps when they are creeping towards you. Positional audio is also pretty good thanks to the Quad DAC setup. The mic quality of the headset is pretty decent too, with teammates chiming in saying that it's pretty clear and they can hear us clearly without much issues.

Overall the ROG Delta functions pretty well for what it is set out to do, with the addition of RGB and extra pads for those that do not like leather pads. It is comfortable and features a unique design as well, compared to the normal oval or round headsets.



The ROG logo in the earcups, you can even swap out the leather pads for a Hybrid pad



The volume rocker and RGB on/off toggle on the right earcup

Design
RGB-capable

Microphone
could be
longer

CHIP CONCLUDES

The ROG Delta is a well made pair of gaming headset with RGB capabilities and will easily pair up with your other ASUS devices. Coupled with USB Type-C connectivity and a USB adapter, you can use it with most consoles in the market.

JOI 11 PRO

Price: RM999 (Tablet Only)
Contact: SNS Network (M) Sdn Bhd
Phone: (03) 7931 7616
Info: <http://www.sns.com.my>

Operating System: Windows 10 S
System on Chip: Intel Atom x5-Z8350
Memory: 4GB RAM
Storage: 64GB (expandable with 128GB microSD card)
Display: 10.8-inch Full HD Touch Display
Camera: 5-megapixel (Rear), 2-megapixel (Front)
Battery: 8,400 mAh
Dimensions: 276.4 x 184.8 x 8.8 mm
Weight: 700 g

Antutu 3D: 12174
Antutu UX: 25380
Antutu: CPU: 28632

Performance:
Features:
Design:
Value:



En-JOI A Larger View

JOI had few new products introduced at the tail end of 2018, and the JOI 11 PRO is one of them. Out of the box, the 11 PRO is a tablet that runs on Windows 10 S, an operating system that could be a benefit for some or an annoyance to others. While Windows 10 S allows for faster booting and overall increased security, not being able to install apps willy-nilly from sites that you frequent irked us a little.

As mentioned, Windows 10 S disables the ability to run apps downloaded from your browser, and your only access to apps or games are via the Windows Store that are certified to be safe by Microsoft. In S Mode, you are also not able to run commands like PowerShell and so on. We even tried to remove S Mode, but the tablet did not allow us to do so.

That aside, the tablet does feature a large 10.8-inch display that is touch capable, a healthy amount of ports with its mini HDMI, micro USB, microSD slot and USB Type-C. The Type-C port will usually be used to charge the device, and it is packaged with a micro USB to USB converter in the box as well, allowing you to plug in an additional device like your external drive. It also has a camera on both sides, so you can take pictures or selfies without much hassle. The version we got our hands on is the 64GB version, and with that you can store more pictures, videos, and

games. You can use a 128GB microSD card to bump up the storage capacity. However, we found some of the ports to be on the flimsier side. It could just be the luck of the draw, but we found the microSD port slightly wonky. Of course, it still worked perfectly fine.

The tablet performs well on its own, with Microsoft Edge and Microsoft Store offering most of what you'll need out of a tablet. Due to its large size, holding the tablet with one hand will be a challenge, and this is where the additional accessories come in. You can purchase a JOI Active Pen and JOI Leather Keyboard to complement the JOI 11 PRO.

The Active Pen allows for creatives to do their work on the tablet with relative ease. All you need is a AAA battery to power the pen to work with the tablet. As for the Leather Keyboard, it is a keyboard with a leather cover that you attach to the bottom of the tablet to turn it into a fully functioning 2-in-1 device. The leather keyboard also packs a tiny trackpad that works like a charm, but most of the time you'll be better off with using the touch controls.

The JOI 11 PRO is a decent machine on its own and we didn't have much qualms aside from choice of using Windows 10 S. But if security is a major concern of yours, then this is a good pick. With the addition of accessories, you could easily transform the tablet into a 2-in-1.



Decent amount of ports



The JOI Leather Keyboard and JOI Active Pen complements the tablet, but have to be purchased separately

+ Large display

- Windows S

CHIP CONCLUDES

A tablet with a large display allows for easier media consumption, but it running Windows 10 S complicates regular app installations, in return for added security.

By Rikco Shim

Canon PIXMA E4270

Price: RM398

Contact: Canon Marketing Malaysia Sdn Bhd

Phone: (03) 7884 6000

Info: www.canon.com.my

Type: Inkjet

Print Speed: 8.8ipm

Paper Size: A4, A5, B5, LTR, LGL, 4x6, 5x7, 8x10, Envelopes

Connectivity: WiFi, USB 2.0

Dimensions: 435 x 295 x 189mm

Weight: 5.9kg

Performance:



Features:



Design:



Value:



Low Cost Printing

Even with the evolution of media and print, there's one thing that hasn't really changed when it comes to function, which is the printer. Whether it comes to businesses or education, a printer is still heavily relied on by students, teachers, and the salaryman. Ranging from important documents to students' assignments and test papers, everyone still goes back to their trusty ol' A4 fed printer.

While the importance of printing has not changed, over the years, manufacturers have strived to improve the printing experience of users. And now you can get features usually found on the premium printers of the yesteryears on low cost printers. The Canon Pixma Ink Efficient E4270 is another means to that end, designed to provide affordable wireless printing at a low running cost. That's right, wireless printing at an affordable price, and with the advent of mobile devices like tablets, notebooks, and smartphones, the ability to provide wireless printing is a huge boon.

Using the Canon PRINT Inkjet/SELPHY app which can be found on both iOS and Google Play Store, your devices can easily send documents and such to the printer for simple and quick printing of important or essential documents. All it took was a few taps here and there and we got the printer doing what we needed. But printing isn't the only thing it is capable of. If you're an art student, a scanner is sometimes required. The E4270 comes with its own scanner, so you at least have that extra feature ready if you ever need it for scanning or photocopying.

Printed material came out satisfactory during our tests, putting the printer to the task of printing pages with just text, images and both together. Text is crisp and clean while images are decent for basic usage, but if you're looking for professional usage, we'd recommend something meant to print professional level images. Finally, you can print up to 400 pages on a single ink cartridge before needing a replacement cartridge, which doesn't even cost a lot. ☑



Nothing more useful on a MFP than a scanner



Everything can be easily controlled from this nifty control panel

+ Ease-of-use
WiFi

— None

CHIP CONCLUDES

The Canon Pixma Ink Efficient E470 is an amazing printer to have in your home or office for low print volumes and everyday use.

By Nixon Ng

Acer Predator Orion 9000

Price: RM27,249

Contact: Acer Sales and Services Sdn Bhd

Phone: 1 800 88 1288

Info: www.acer.com.my

Operating System: Windows 10

Processor: Intel Core i9-7980XE

Graphics: 2x Nvidia GeForce GTX 1080 Ti (SLI)

Memory: 32GB DDR4

Storage: 512GB SSD, 3TB HDD

Ports: 2x HDMI, 6x DisplayPort, 1x Gigabit LAN, 1x 802.11ac WiFi, 2x USB 3.1 Gen1 Type-C, 8x USB 3.1 Gen1 Type-A, 2x USB 2.0, 5x Audio port, 1x Optical (SPDIF), 1x Audio out (top), 1x microphone (top)

Others: DVD-Writer, Bluetooth, Headphone rest

Dimensions: 643 x 299 x 700 mm

Weight: 1.36kg

Performance:



Features:



Design:



Value:



Star Performer

Acer's Predator gaming brand has certainly done well for itself in 2018. Even its latest Predator Orion 9000 packs one hell of a wallop in gaming performance, though it might be pricey.

The Predator Orion 9000 is a desktop PC that comes in a large tower chassis. It sports the black and silver-grey colour scheme that Acer favours, combining with the angular body and edges for a design that will appeal to gamers. There's plenty of metal mesh used here, allowing for excellent air intake and ventilation.

At the front, you'll find three small metal mesh panels that provide air intake. Add the fact that the CPU is liquid cooled and you get very good (average 65° C) temperatures. This applies to the GPUs as well, which usually hit around 50° C when on load. Going back to the build, we like how the side panels are easy enough to remove, but not TOO easy; you need to remove two screws before you can unlatch it. There's more mesh at the top too, which you can remove to get access to the top fan mounts. Another nice design feature are the plastic wheels near the bottom, which sort of make it possible for you to wheel this giant desktop to your next LAN party. However, make no mistake - it's heavy.

This desktop has a great selection of input and output ports spread out over the top and back panel. You get a total of ten USB Type-A ports and two USB Type-C ports - more than enough for all the devices and peripherals you may need. You'll also have a Gigabit Ethernet port to go along with the internal Wireless AC.

Most pre-packaged desktop PCs are difficult to upgrade post-purchase, but for the Predator Orion 9000 you just have to remove the side panel to access to everything inside and replace the parts within as and when you need to.

Speaking of pre-package, a full-sized mechanical keyboard and a gaming mouse are bundled along with this desktop. We're not sure what switches this keyboard uses, but it uses lower-profile keys that feel like Cherry MX White switches. The mouse is nothing special but has decent build quality.

As you can tell from the specs, you can enjoy playing games at even 4K pretty good frame rates. We ran the system through our favourite trio of Rise of the Tomb Raider, The Witcher 3 and Battlefield 1, managing to get an average of 59 FPS at 4K resolution. Best of all is that the GPUs maintain very good temperatures thanks to the excellent airflow.



By removing the transparent side panel, you can upgrade the parts inside anytime you want



Press this turbo button to get a small performance boost

+ Upgradable
Excellent thermals

- Takes up space

CHIP CONCLUDES

If you need a machine that can do all things and are willing to shell out the cash, this gaming PC can answer all those needs.

By Matthew Yap

HTC U12 life

Price: RM1,399

Contact: HTC Careline

Phone: 1 800 88 9855

Info: www.htc.com/sea

Operating System: Android 8.1 Oreo

System on Chip: Qualcomm Snapdragon 636

CPU: Octa-core 1.8 GHz Kryo 260

GPU: Adreno 509

Memory: 6GB

Storage: 128GB eMMC Flash expandable with microSD

Display: 6-inch 1080 x 2160 IPS

Camera: 20MP (rear), 13MP (front)

Connectivity: Bluetooth 5.0 + A2DP + LE, 802.11ac,

WiFi-Direct

Dimensions: 158.5 x 75.4 x 8.3 mm

Weight: 175g

Antutu: 116,999

PCMark for Android: 5,812

3DMark Slingshot Extreme: 952

Performance:



Features:



Design:



Value:



Bringing Life To You

It's been a while since we've seen HTC smartphones and many thought we'll only see HTC-made Google smartphones after the search giant acquired part of HTC's design team. But looks like HTC isn't about to throw in the towel yet as it continues to release smartphones, one of it being the HTC U12 life.

Cutting into the highly competitive mainstream market, the U12 life is a midrange device that has a decent build and design. The rounded corners and sides are definitely the preferred style for most these days, since that makes a device more comfortable to hold. While it may look like metal, the back and frame of this smartphone is made of plastic. The back panel is also covered by an additional layer of acrylic to give it a glossy sheen.

The two-tone finish at the back is a nice touch, especially the textured bottom part that makes the phone easier to grip. However, it's a major fingerprint magnet and you'll quickly see ugly smudges after minutes of use. Combined with the fact that the rear camera juts out ever so slightly, and you'd really want to be using a case with this phone.

Due to the use of 18:9 ratio displays, capacitive buttons are things of the past. The only thing that is also on the front here is the 13MP camera and the accompanying LED

flash. As for the back, there's the 16MP and 5MP (depth sensor) cameras, dual LED flash, and fingerprint sensor. The headphone jack can be found on the top, USB Type-C connection and speaker at the bottom, volume and power buttons on the right, and finally the SIM tray on the left.

For a midrange, the U12 life has pretty respectable hardware. The Snapdragon 636 chip comes with an octa-core CPU and decent GPU, which does perform decent enough for general use and applications. But if you're looking to play high-end games on this, then it will feel very sluggish unless you dial down the visual settings.

Despite being part of HTC's life series, the U12 life ditches the IP resistance rating and isn't an Android One device, which many prefer. In return, its large 3,600 mAh battery and screen resolution makes it a decent device for watching video content.

Though it may be a midrange, you can tell from the specs that HTC went all out on cameras. The main rear dual camera setup delivers solid photos and the depth sensor is particularly great for some fun Bokeh shots. However, the lack of optical stabilisation means you might often get blurred shots. ☐



Fingerprint attraction at its best



The large, notch-less screen makes it a decent device for watching videos

+ Large screen

- Fingerprint magnet

No Android One

CHIP CONCLUDES

A midrange device that looks great and has a good camera. It's a bit hard to recommend due to the comparatively heftier price tag, but it's still worth looking at if you're in the market for a good camera phone.

By Matthew Yap

Samsung Galaxy Watch

Price: RM1,199

Contact: Samsung Malaysia Electronics Sdn Bhd

Phone: 1 800 88 9999

Info: www.samsung.com/my

Connectivity: Bluetooth 4.2, NFC, Wi-Fi

Display: 1.2-inch Super AMOLED, 360 x 360

OS: Tizen Based Wearable OS 4.0

Storage: 4GB

Sensors: Accelerometer, Barometer, Gyro Sensor, Heart Rate Sensor, Light Sensor, GPS, GLONASS

Battery: 270mAh

Strap: 20mm (Interchangeable)

Dimension: 45.7 x 41.9 x 12.7 mm

Weight: 49g

Performance:



Features:



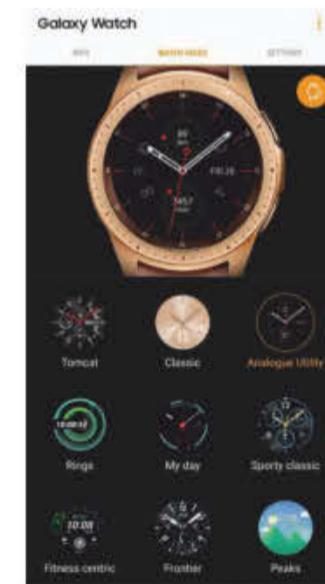
Design:



Value:



Rotating the bezel ring allows you to quickly and easily select the apps you want



Changing the watch face can be easily done on the Galaxy Wearable app

+ Gorgeous display
+ Rotating bezel

- Battery life

CHIP CONCLUDES

The Galaxy Watch performs well with plenty of features and tricks up its sleeve – a good contender in the smartwatch market. The only issue is with its short battery life that can be tackled by charging it when you're not wearing it.

By Rikco Shim

Sonos Beam

Price: RM2,399

Contact: TC Acoustic Pte Ltd

Phone: (03) 9212 0351

Info: www.tcacoustic.asia

Power Output: 65W (Estimated)

Connectivity: Bluetooth, HDMI (ARC), Ethernet

Others: Touch control, Optical converter, HDMI cable

Dimensions: 68 x 651 x 100 mm

Weight: 2.8kg

Performance:



Features:



Design:



Value:



Beam Me Audio, Sonos!

For every hardcore enthusiast that wants only the best HiFi setup, there are hundreds of casual who want more affordable surround audio. Soundbars are the de-facto alternative champs in this area and this time we got to test the Sonos Beam.

Inside the long box, there's the power cable, HDMI cable, and HDMI-to-optical converter to go along with the soundbar. The soundbar itself has an oblong body with a flat bottom and slightly concaved top. It doesn't look very fancy at first, but it has a modest style and elegance that will make it look good in living rooms. You can also choose to get it in white or black, so there's a degree of colour pairing or contrast in design that some people may consider important.

At the top of the soundbar near the middle, there are three touch buttons for volume control and play/pause. As for the back, there is the power connection, HDMI port, Ethernet port, and a button for pairing.

The Sonos Beam is more compact when compared to a lot of other soundbars. It should fit well enough under most TVs, unless your TV's stand is too short. Installing it is easy if you're just using it as is: Plug the power in, then connect it to your choice of

device - TV, game console, or media player - and ensure that the audio setting is set to digital.

Of course, if you want more functionality then the Sonos app is a must. With it, you can add a Sonos Sub (subwoofer) or One (speaker) to your setup, stream from over a dozen online music services directly from your smartphone, or get voice assistant/control support. While Amazon's Alexa is yet to be supported in our country, you will be able to get the Beam to work with Apple AirPlay 2.

Other uses for the app include setting up different room profiles, basic EQ tweaking, or syncing your TV's remote control to the Beam. The profiles aren't really that important if you don't plan to add speakers, but the last one is quite handy since you can then use the remote to control the volume or mute the soundbar.

When it comes to audio quality, the Beam is top notch. It not only outputs really high volume but also has fantastic soundstage and has good bass performance too, providing more than enough punch for your favourite action movies. The only flaw we found is that it gets slightly sibilant at the higher volume levels.



You can hook it up to your network for playback from a NAS

Remote Control Setup

Hold the remote control, and point it at the PLAYBASE. Press the Volume + button on that remote control.



Sync a remote control to the Beam for easy volume control through the Sonos app

- + Easy setup
- + Great bass
- + Excellent soundstage

- Slight sibilance at high volumes

CHIP CONCLUDES

Relatively compact, great audio performance, and packed with useful features - if you're going to get a soundbar, definitely consider this one.

By Matthew Yap

Suunto 9 Baro

Price: RM2,799

Contact: Amer Sports Malaysia Sdn Bhd

Phone: (03) 2282 0009

Info: <https://www.amersports.com/>

Display: 320 x 300

Materials: Stainless Steel (Bezel), Sapphire Crystal (Glass), Silicone (Strap)

Weight: 81g

Wrist Size: 130 – 230mm

Strap Width: 24mm

Water Resistance: 100 m

Battery Life: Up to 14 days

Tracking: Steps, Calories, Sleep, GPS, GLONASS, QZSS,

HR, Barometric Altitude, Weather, Numerous Exercises

Dimensions: 50 x 50 x 16.8mm

Performance:



Features:



Design:



Value:



The Suun To Your eyes

The Suunto 9 is a smartwatch made for the more adventurous type that loves their mountain climbing, skiing, swimming, and so on. But of course you can use it for normal activities such as jogging, cycling and more without much issues. But firstly, the Suunto 9 comes in a few versions, and the one we got our hands on is the Suunto 9 Baro. Depending on your needs, the other versions might be a better suit.

The smartwatch does pack some bulk to it. Unlike your regular slim smartwatches, the Suunto 9 leans towards the rugged side with its Stainless Steel bezel and sapphire crystal glass. This means that the watch can be used a little more carelessly without much babying. The watch's battery life is also pretty impressive when you are just using basic tracking like sleep and steps. It is equipped with three buttons and a touch-capable screen that assists with navigating around the watch. Returning to the previous menu will require you to swipe right as there are no physical back button on the watch.

As for features, if you are talking about tracking and navigation abilities, then this watch is chock-full of it. You can plan running routes on your phone, and then run that guided route on your watch. But if you are hiking and want to set Points of Interest, you can do that with just your watch. For example,

you are hiking across the woods and want to set a marker for your camp, you can do just that, to prevent yourself from getting lost.

To start your tracking, you can either fire it up manually via your smartphone or kick it off on your watch. When selecting your exercise, the watch even makes audible sounds and will vibrate, thus giving visual and audible feedback. When you complete your lap or end your exercise, the activity record will be pushed to your phone and you can check how well you've done. Its tracking ability is pretty accurate thanks to the FusedTrack feature that combines GPS and motion sensor data for precise tracking. You can even share or check other Suunto user's activities near you, or get detailed information on them as well, such as their lap times, heart rates and so on. You can even inadvertently challenge their time by running their route, to see if you can beat their time; it's great motivation for those that like to challenge others.

The Suunto 9 is a great watch for tracking activities, is built tough and rugged, while also empowered by a long lasting battery to make it an amazing watch for those with active lifestyles. Navigating the watch does take some getting used to and the UI could definitely be better, but with additions such as native Music Player and NFC, this may very well be the best watch on the market now.



The back of the watch



On the Suunto app, you have access to other people's performance and could challenge their time as well.

Battery life
Capable of tracking a variety of things

Could have more "smart" features

CHIP CONCLUDES

A great smartwatch that could tackle multiple different sports and activities plus a massive battery life makes it a good shout if you do not require NFC payments or internal music storage.

By Rikco Shim

Klipsch R5 Wireless

Price: RM599
Contact: TC ACOUSTIC PTE LTD
Phone: 03 9212 0351
Info: <https://www.tcacoustic.asia>

Headphone type: In-ear
Driver: Dynamic Moving Coil Micro Speaker
Frequency: 10 – 19,000 Hz
Connectivity: Bluetooth
Battery: 110mAh

Performance:	■	■					
Features:	■	■					
Design:	■	■					
Value:	■	■					



Till I Hear You Sing

Wireless audio is really picking up in recent months, and although true high-fidelity sound can only come from cabled setups, this may change over time. Bluetooth audio has improved vastly over the years, but still lacks the same quality that can be provided by wired audio devices. But since wireless audio has almost caught up in terms of sound quality, wireless audio can finally take the stage if users are willing to sacrifice just a bit of quality - not that there is much being sacrificed.

Enter the Klipsch R5 Wireless headphone, a beautiful specimen of wireless audio that has left us wanting more from it. It is minimalistic when it comes to both features and design, but that's something we can appreciate. Pairing of devices was incredibly quick and simple, with our devices quickly picking up the device and pairing in below a minute. This makes the R5 Wireless one of the fastest devices we have connected to. We can probably thank Bluetooth 4.2 connectivity for that, but fast connectivity isn't all that comes with it.

The R5 also comes with Qualcomm's Bluetooth aptX, further improving the sound being transmitted to the R5. Our main form of listening is through Spotify on its highest streaming quality. This is to replicate what the average consumer is most likely to use. A wide variety of music genres are also made available to us with the streaming platform. After listening to the R5 we have agreed that the sound signature is quite warm. It is easy to listen to for hours and at moderate volumes without fatigue. If you're a bass head, then you'll definitely enjoy the R5's.

Bass is deep and punchy, really hitting the lower frequencies - this is the strength of the R5. Its mids are smooth and slightly forward, becoming the main attraction until the bass comes up. The bass is strong, punchy, and has kick to it, but it can be too pronounced at times. Sometimes you'll be listening to a song and you get great vocals, but when the bass kicks in, you might notice the vocals start taking a backseat as though the bass jumps in front of the vocals trying to steal its thunder. ■



Simple and with as little buttons as possible

+ Audio quality
+ Comfortable
- Ease of use
- None

CHIP CONCLUDES

The Klipsch R5 Wireless is a pair of wireless earphones we would easily recommend, just for the fact that it's so easy to connect quickly and its great sound quality.

By Nixon Ng



Floors For Killing

The usual concoction of Zombies (Zeds), guns and gore

By Rikco Shim

Although Killing Floor 2 has been for quite some time now, we still found ourselves going back and playing it weekly. Killing Floor 2 is a first person shooter that can be played alone, with friends, or with random online players. There are different rounds depending on the length of the game, be it short, medium, long or the newly introduced Endless. There are numerous maps to choose from and new official maps are added to the game every now and then. If you wish, you can even design and create a custom map that other people can play. Maps can vary from snowy fields to airships and to castles.

Your task is to kill Zeds every round to progress and, depending on the length of the map, it can vary from 4 to 10.

Once you complete the last round, there will be an additional round to fight the boss. There are currently four bosses in the game and each boss requires a different strategy. For example, the King Fleshpound will require the team to change targets every now and then while running and gunning, as he can spawn Quarter Pounds that are basically a smaller version of the boss.

With each passing round, there will be more mobs to fight and depending on the amount of players you have with you, the enemies will increase in numbers as well. And in each round, there's a chance to spawn a Large Zed. These are harder to kill compared to normal Zeds and will sometimes require a whole team to

end it swiftly. Then there is the Scrake, an enemy that wields a chainsaw that can easily decimate your whole team with a single swipe. Enemies will also sometimes have different skins depending on the season. As of writing, the Twisted Christmas was released, so enemies don Christmas attires fitting for the festivities.

There are a few characters to play as, each with a preferred weapon and will interact with one another during normal gameplay. There are also weapon skins and costumes to wear that can be purchased with real money, but those are purely cosmetic and don't affect gameplay.

With each update, they will usually add new weapons and tweak previous weapons or perks. Speaking of Perks, there are 10



One of the new paid DLC characters, voiced by Gary Busey

perks for you to choose from. For example, the Berserker that utilises melee weapons to dice up Zeds, the Sharpshooter that uses rifles to take down Large Zeds with pure firepower, or the Gunslinger that rains bullets on enemies. Each perk has weapons that best suit them. Of course, you can play as a melee Sharpshooter if you wish, but you will not gain EXP for the class. Every 5 perk levels, you gain access to different skills that could potentially change up how you play.

During rounds, there is a chance of triggering Zed Time whenever you kill a Zed. Zed Time slows down the world by 20% for 3 seconds, which means that players can take better aim at enemies and go for the kill. Going back to maps, some maps offer incentives or money by completing optional objectives. Money in turn will allow you to purchase more ammo or different guns to take on the enemies. However, there is a weight limit so you can only carry a limited number of guns.

Killing Floor 2 offers endless replayability with plenty of customisations via perks, weapons and skins. Maps sometimes get stale, but if you like mindless shooters and just wanna pummel some enemies then this game is for you. The gun sounds and feels just like they should and have weight to them. If you are looking for Blood, Gore, Guns and Fun, then this should just be right up your alley. With constant updates over the years, there will be much to do and much to kill. ☐



You can literally paint the walls red

Killing Floor 2

Genre: FPS, Survival Horror
Developer: Tripwire Interactive
Info: <https://www.killingfloor2.com/>
Platform: PlayStation 4, Xbox One, PC

+ Plenty of customisation and personalisation
 Constant updates
 Great gunplay

- Not much story

Gameplay:
Sound:
Replayability:



Most Anticipated Games Of 2019

Gungrave Gore

While this was announced a while back, there was no specific release date. But recently, a new trailer for Gungrave Gore was released and while it did not show much aside from the stuff that we've already known about, it was tabled to release in December 2019. Still a year away now.



The Outer Worlds

Developed by Obsidian and potentially coming out in 2019, many would call The Outer Worlds "like Fallout, but in space", and that would most likely be true. But it looks inspired by Bioshock as well. With well-built characters, multiple choices and a potentially deep storyline, we can't wait to explore Halcyon. The game even has a flaw system. For example, if you are constantly attacked by a certain creature, you might gain a fear for them. It gives you a debuff when fighting such enemies, but you gain a character perk immediately.

Resident Evil 2 Remake

While this is technically an old game, the game slated to be released soon (25 Jan 2019) will undoubtedly be our horror game of the month as we dive back into Racoon City, this time with updated graphics and controls. You get to play as Leon and Claire, and it seems you'll be able to play as Ada Wong as well. According to official sources, the game will have a slightly altered storyline, and players will be able to interact with more characters and items in the world.



Tom Clancy's The Division 2

The Division 2 is a third-person team based shooter that takes place a few months after the first game. According to Ubisoft, three DLC packs are already planned and will be released for free. This means that there could be a chance for lootboxes or micro-transactions to appear in the game. We did enjoy our time with The Division, as it has a pretty solid gameplay with high replayability. Add co-op into the mix and you can get countless hours of gameplay out of it. According to Ubisoft, there will be raids in the game, and will fit up to 8 players, so you can expect endgame loot grinding.

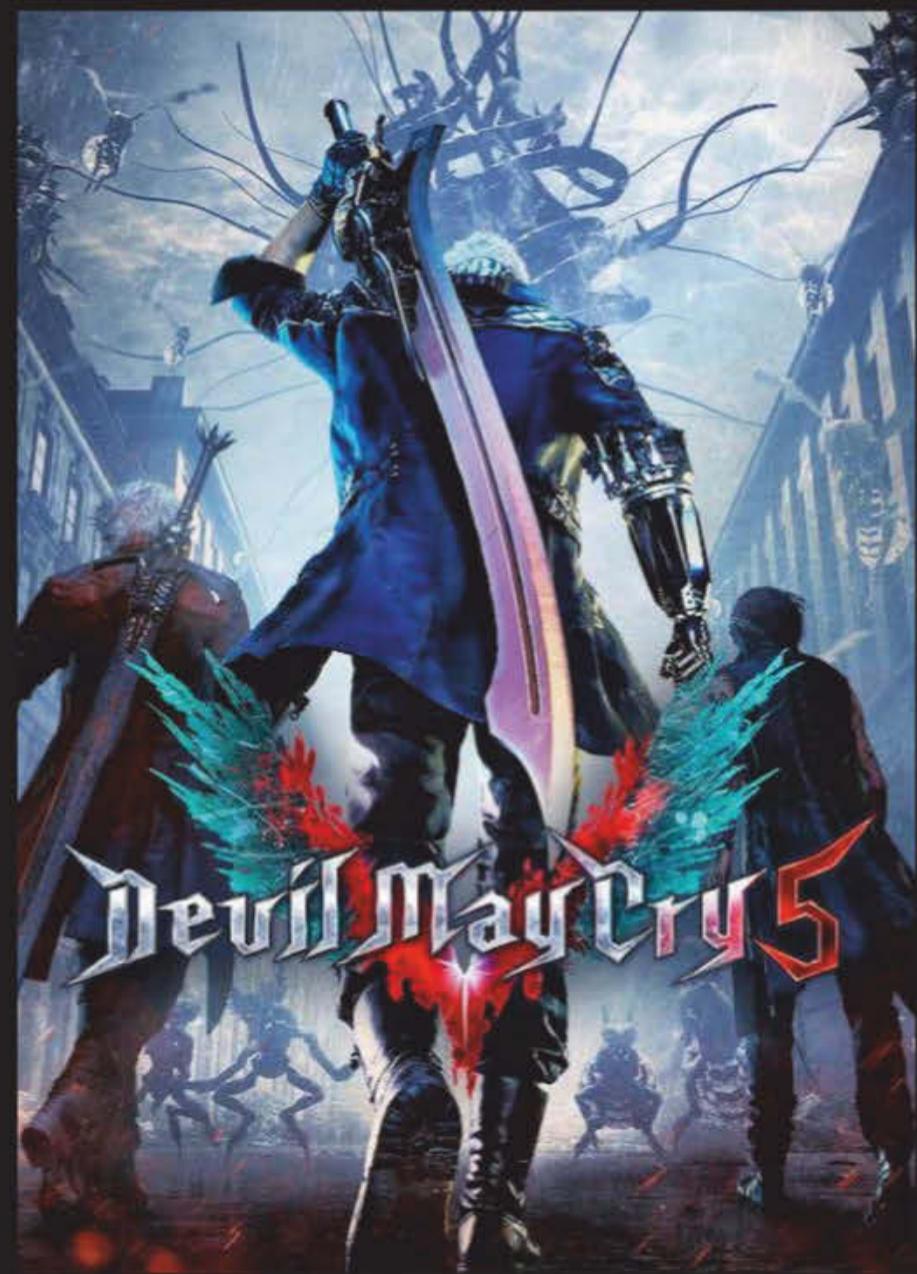


Sekiro: Shadows Die Twice

From Software, the creators behind Dark Souls, is back at it again. But this time Sekiro: Shadows Die Twice offers a different flavour of the same unfriendly and expect-to-die-countless-times soup. In Sekiro, you are equipped with a grappling hook that allows for easier and faster traversals around the world. It does not seem like a simple Dark Souls reskin at all.

Devil May Cry 5

Another game from Capcom that we hope will be great, but fear it will be swarmed with DLCs and micro-transactions. It was revealed that there will be three playable characters (currently) in Nero, Dante and V. Some fans seem to think that V is Vergil, Dante's brother, but that is still speculation. Just like previous Devil May Cry games, the game will be focussing on weapon combos and style ranks.



Warcraft 3: Reforged

With no exact date in sight from Blizzard, all we know is that Blizzard is adamant to release it in between now and before the end of 2019. For those who loved the classic RTS game, Warcraft 3: Reforged is a stunning reimagining of the popular strategy game. Your favourite stories and characters are coming back bigger and better than ever, with better graphics, balance, and with an upgraded World Editor that is more powerful than ever. An added perk is you'll get the classic versions of both Warcraft 3: Reign of Chaos and The Frozen Throne as part of the package.



Anthem

Anthem's existence has been revealed for a while now. Developed by the same company that brought us Mass Effect and Star Wars: Knights of the Old Republic, Anthem is a third-person shooter combined with an action role-playing game in an open world. You take up the role of a Freelancer who has access to specialised suits called Javelins that let you traverse the dangerous world of Anthem. Players will also be able to build relationships with NPCs, which could open new avenues to your gameplay. The game is slated to be released on 22 February 2019 if nothing goes wrong.

Dying Light 2

Who doesn't love to kill zombies? The first Dying Light was a hit, thanks to Techland's ability to blend killing zombies and parkour into a satisfying game of being either the cat or mouse. The fluidity of the parkour system while escaping from crazed zombies is addictive and adrenaline pumping, especially at night when the Volatiles come out. Dying Light 2 is the sequel with an added caveat, where your choices will be able to affect how the world shapes itself as the game progresses. Furthermore, the game's narrative designer is Chris Avellone who is known for his work on Baldur's Gate, Neverwinter Nights 2, and Fallout: New Vegas.





Project Awakening

As of time of writing there isn't much information regarding Project Awakening, but it's by the Japanese-based developer, Cygames. What we do know is that your character will be fighting against large monsters just like the Monster Hunter Series. The graphics look amazing and we can always expect a lot when it comes to voice acting for Japanese games. Our guess on the world is either a post-apocalyptic medieval world, or the player travels to an abandoned lost civilisation where it is known that monsters inhabit the lands. An exact launch date has not been announced but people believe that Project Awakening has a good chance of making an appearance in 2019.



Days Gone

In a post-apocalyptic world where a global pandemic has killed almost all of humanity you are a man named Deacon St. John. In this world, there are some that turned into zombie-like creatures called "Freakers" that act like zombies right out of the World War Z movie. The player will have to complete objectives and fight against not just Freakers but also infected animals and other human enemies. Days Gone also features a dynamic weather system and day-night cycle that affects the attributes of the Freakers. With more than one way to complete missions, either guns blazing or stealthily, each player will have the opportunity to play the game in their own style.

The Sinking City

Lovecraftians rejoice as another game inspired by horror writer H.P. Lovecraft is coming our way in 2019. The Sinking City is a third person adventure game which takes place in the fictional city of Oakmont. It is set in the 1920's where movie stars and gangsters were everything. Oakmont has been hit by a massive flood that has turned a large part of the town into something eerie and supernatural. Throughout the game you'll have to investigate mysteries and fight against horrors that will haunt you while you unravel the mysteries of the town. The Sinking City is an open world game that gives you full freedom over your gameplay and provides a non-linear experience. 

Bits Of Bytes

The games industry moves blazingly fast these days. In this section, we bring to you your monthly round-up of unmissable gaming news By CHIP Team



Street Fighting For More Money

Recently, Street Fighter V made headlines yet again, not for a new fighter but for a new way to sell you ads. Yes, advertisement in a USD 60 game. Not that this is particularly new for ads to be in games, but the way that they go about it is the weird part. Capcom dubbed the ads as "Sponsored Content". The Sponsored Content will be made up of character costumes, bundles and upcoming Capcom Pro Tour. There's a few ways the ad will be shown – on character costumes, loading screens and in-game stage ads.

The fighters will have a specific Ad Style costumes that they can wear and it'll appear somewhere on the costume. For example, if turned on and equipped Ryu's boxing gloves will show off the sponsored content. According to Capcom, loading screens will have ads as well,

but it will not slow down loading times. As for stage ads, some stages will have TVs or rotating banners and the sponsored content will be shown there.

Players can opt to turn off Sponsored Content but they will lose out on additional Fight Money that is earned after the fight. Fight Money allows you to purchase characters or costumes and with it off, you can expect to earn ridiculously low amounts of it.



More Fallout For The Price Of One

Following the launch of Fallout 76 that was met with criticism, disdain and probably even hatred, Bethesda has decided to calm the waters. Not by making the game free or making major changes to the game, but by giving people that own Fallout 76 and have played it in 2018 a free game package that consists of Fallout 1, Fallout 2 and Fallout Tactics. It is slightly surprising that they didn't bundle in Skyrim. At least with this bundle, you'll be able to experience good Fallout games.

Hitman: Home Alone

With the release of HITMAN 2 not too long ago, we are seeing new additions to the game just in time for the holiday season. Holiday Hoarders, a bonus mission that was released back in HITMAN 1 in 2016, has Agent 47 dressed up as Santa. In the mission, you are tasked to take out two targets in Harry "Smokey" Bagnato and Marv "Slick" Gonif. The names are homage to the thieves in first Home Alone movie.





Flossing With Fortnite

Another lawsuit has come up regarding dance moves portrayed in the popular battle royale game Fortnite by Epic Games. The Floss dance was made popular by "Backpack Kid" and apparently his mother, who is also his manager, is the one behind the lawsuit. According to an interview, the boy himself does not mind it as much. But his mother could be jumping on the bandwagon after the Carlton dance was also targeted by Alfonso Ribeiro, who starred in the show "The Fresh Prince of Bel-Air", from where the dance was popularised.

Epic Tells Tales

The final two episodes of Telltale's The Walking Dead: The Final Season will be exclusively available through the Epic Games Store platform, while the previous episodes of the Final Season will also be added to the platform. But if you've already bought the Season Pass on another platform such as Steam, then you'll still receive the last 2 episodes on Steam as well. The Final Season was slated to be cancelled, but Skybound Games took over development and Epic Games joined up to provide the ending that everyone needs.

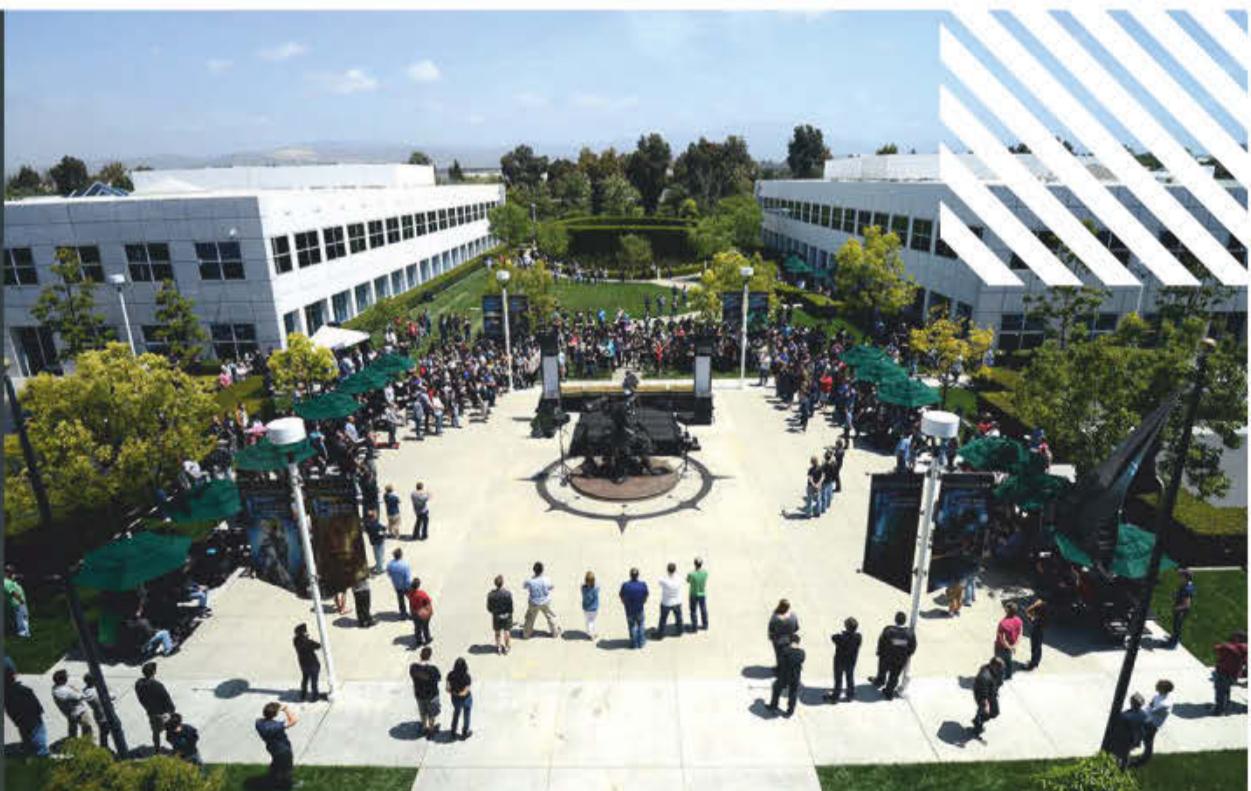


Smash-Ing Records

The Super Smash Bros. Ultimate has released and it is garnering attention left and right. Both seasoned vets and new players can't wait to get their hands on their favourite fighters. According to Nintendo, it is currently the fastest selling game in the Super Smash Bros. Series, and that the game has sold over 3 million copies in just 11 days! Joker, the main character of Persona 5, was already announced to be the first DLC character for the game.

Blizzard Pays You To Leave

In a stint to possibly cut costs in the company, the people in charge of the financials at Blizzard seem to think that a generous severance pay would encourage workers to leave the company of their own accord. We believe it's quite an interesting way to balance out costs, but many are reading further into it and are choosing to take it negatively. But as long as Blizzard isn't forcing employees to take the severance package, how this move works out remains to be seen.





X Doesn't Mark The Spot

ATLAS is an open-world online survival game set in a period of pirates roaming the world. The game is developed by the same developer that created ARK: Survival Evolved and it seems to be taking some characteristics from its brother. ARK is a game that has been plagued with optimisation issues, where you'll get unstable FPS' even on flagship performance graphics cards. Now it seems ATLAS has also taken up the same mantle of being badly optimised. People have been complaining about using the latest RTX Titan graphics cards and still experience unstable FPS' even on 1440p resolutions.

Overwatch's Naughty List			
DATE	PLAYER	TEAM	INFRACTION AND ACTION TAKEN
Dec. 21	Damon "Apply" Conti	Florida Mayhem	Suspended two games for account boosting.
Dec. 21	Kelsey "Colourhex" Birse	Boston Uprising	Suspended two games for account boosting.
Dec. 21	Shilong "Krystal" Cai	Hangzhou Spark	Suspended one game for account boosting.
Dec. 21	Se-Hyun "Neko" Park	Toronto Defiant	Suspended three games for selling an account and obstructing league office investigation. (Note: an earlier version of this post mischaracterized the specific infraction.)
Dec. 21	Riku "Ripa" Toivanen	Los Angeles Gladiators	Suspended five games for throwing matches and toxicity.
Dec. 21	Won-Jae "Rise" Lee	Guangzhou Charge	Fined \$1,000 for account sharing.
Dec. 21	MinKi "Violet" Park	San Francisco Shock	Suspended two games for account boosting.

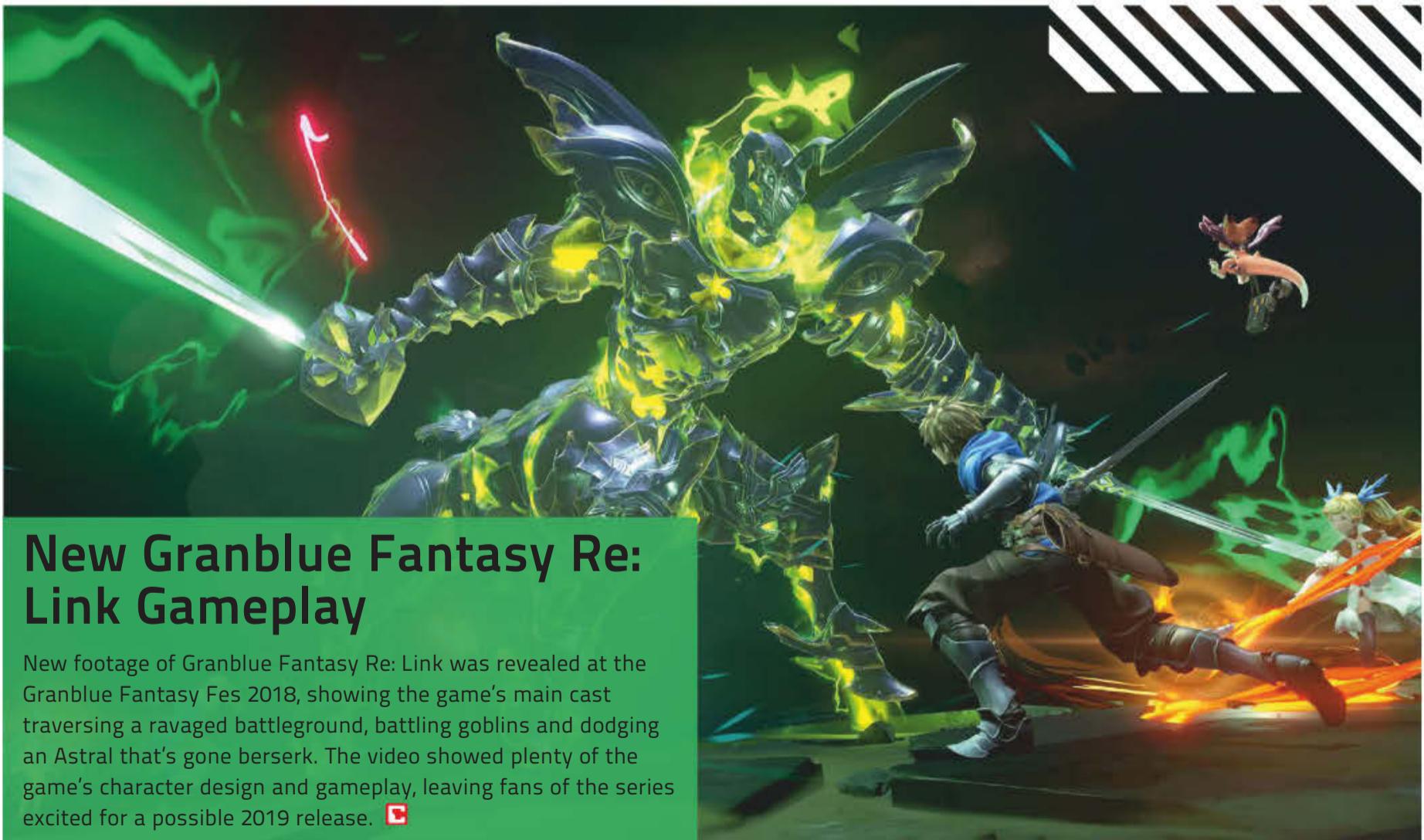
More Azur Lane Crosswave Gameplay

Felistella's in-development naval battle RPG, Azur Lane Crosswave, has gotten a new YouTube video that sheds some light on what the game will have. In the video, it was revealed that there would be a completely original story and sub-stories that are fully voiced, and showed some naval battle gameplay featuring the character Ayanami firing at a large ship. Besides that, the game's publisher, Compile Heart, has also added a list of characters that will appear in the game's website (www.compileheart.com/alcw/).



Langrisser Remakes Delayed

According to the developer Chara-Ani, the remake for Langrisser I & II would be delayed. Originally slated for release in Japan on 7 February 2019, the game is now expected to launch on 18 April 2019. Chara-Ani explained that this decision was made in order to further polish up the game, though it is possibly due to a major bug or uncompleted feature that can't be completed before original launch date. A demo of the game may be released to appease any fans who may get upset.



New Granblue Fantasy Re: Link Gameplay

New footage of Granblue Fantasy Re: Link was revealed at the Granblue Fantasy Fes 2018, showing the game's main cast traversing a ravaged battleground, battling goblins and dodging an Astral that's gone berserk. The video showed plenty of the game's character design and gameplay, leaving fans of the series excited for a possible 2019 release. ■

E-Sports Express

Latest E-sports updates from the region and around the world

By Matthew Yap, Nixon Ng & Rikco Shim

Shadowverse World Grand Prix 2018

Shadowverse had its biggest LAN tournament yet in December 2018. The Shadowverse World Grand Prix ended with Japanese player, feg/YL, beating out 3 other competitors in a single-elimination grand finals to claim the grand prize of USD 1 million (approx. RM4.17 million). In other Shadowverse news, the game's 10th expansion is about to drop. Altersphere will contain a total of 114 new cards and two new leader in Orchis, Puppet Girl and Godsworn Alexiel.



MDL Macau 2019 announced

The well-known Dota 2 tournament MDL Macau has been confirmed for 2019. Set to be held from 20 to 24th of February 2019 in Macau, China, MDL Macau 2019 will have an impressive prize pool of USD 300,000 (approx. RM1,252,470). So far, only KL Major finalists PSG.LGD and Virtus.pro have been directly invited, but expect more teams to get direct invites in the weeks to come.

Out Kuku, in ryOyr

Due to the recent controversy on racism that caused TNC some issues with possible attendance of the next Dota 2 Major in Chongqing, TNC player Carlo "Kuku" Palad received an official ban from Valve and won't be able to play till that ban is lifted. This is likely the reason why he has decided to take personal leave from the team, though he remains a part of the roster. In the meantime, Ryo "ryOyr" Hasegawa will be filling in for him.



Astralis' Winning Mentality

Astralis have had a wonderful 2018, with countless wins and numerous titles under their belt in 2018 alone. With them winning ESL Pro League Season 8: Finals and BLAST Pro Series: Lisbon 2018, they have dominated the CS:GO competitive scene in 2018 with a firm grip. The addition of Lars Robl, Astralis' Sports Psychologist who used to be an officer in the Danish Special Operations Forces, proved to be vital to the team. Peter "dupreeh" Rasmussen has mentioned that he talks to Lars often, to talk about his personal feelings and how things are going in his life. Lars has also advised the team to be frank and to have a common goal to aim for.

Even though CS:GO is a team game, a player's stats and personal skills are often highlighted and this can cause turmoil in a team. Lars has mentioned that by having the players focus on a



common goal it helps the team avoid minor spats within. In an interview with HLTV.org, dupreeh mentioned that other players should try following in the steps of Astralis and have psychologists in the team to keep them fighting towards a common goal. Astralis was also the winner of the "Esports Team of the Year" by Esports Awards.

The Astralis team is currently made up of:
Nicolai "dev1ce" Reedtz
Peter "dupreeh" Rasmussen
Andreas "Xyp9x" Højsleth
Lukas "gla1ve" Rossander
Emil "Magisk" Reif
Danny "zonic" Sørensen (coach)



Stewie2K On The Move Again

It seems that Jacky "Stewie2K" Yip is moving again, just 6 month after his stint with MIBR that was filled with highs and lows. Prior to joining MIBR, he was with SK Gaming for while, and MIBR took in SK Gaming's whole roster. On 22nd December 2018, Stewie2K joined up with Team Liquid, with Epitacio "TACO" de Melo and Wilton "zews" Prado moving to MIBR. With zews leaving, Liquid is in need of a coach so they picked up Eric "adreN" Hoag, who used to play for Team Liquid.

Minor Shake-Up in Virtus.pro

On 13th December 2018, VP announced that they are ceasing operations of their CS:GO team and disbanded following streaks of poor performance and failure to meet expectations of the organisation. However, just two weeks after, VP is back again. The team will keep three players and sign two new ones, along with a new coach, as they part ways with Filip "BEO" Kubski, the coach for VP. Jaroslaw "pashaBiceps" Jarzabkowski, a mainstay player of VP for four years is no longer active in the team. The team is now as follows:

Michał "MICHU" Müller
Michał "snatchie" Rudzki
Mateusz "TOAO" Zawistowski
Janusz "Snax" Pogorzelski
Paweł "byali" Bielinski
Jakub "kuben" Gurczynski (coach)





Lenovo and Intel's Legion of Champions III 2019

Follow the excitement and be ready to join the crowd at one of the largest events in SEA

Lenovo has announced the kick-off of its Legion of Champions Series III (LoC III) Grand Finals. In partnership with Intel, this eSports competition will bring together over 60 gaming talents from 11 countries across Asia Pacific, as they seek to be crowned 2019's LoC III champions. This year's tournament is the biggest one yet, including first-time competitors India, Japan and Korea, in addition to Hong Kong / Macau, Indonesia, Malaysia, the Philippines, Singapore, Taiwan, Thailand and Vietnam.

After multiple elimination rounds, local winning team, D.O.D will be representing Malaysia at the LoC III Grand Finals from 25 - 27 January 2019 at Central Plaza Ladprao, Bangkok. The local champions and grand finalists will be competing for a total combined prize pool of USD 35,000 (approximately RM146,000) – the largest of any LoC tournament yet. At the end of the competition, the winning team will walk away with USD 7,000 prize cash and USD 5,000 worth of Legion Y530 notebooks, while the first and second runners-up will take home USD 3,000 and USD 2,000,

respectively.

During the previous LoC, which was held last year, the tournament had welcomed participation from close to 7,000 gamers and 20,000 on-site attendees. Such events have become crucial and valuable moments for Lenovo to interact with the community and better understand their gaming needs and motivations. The evolution of Lenovo Legion has been driven by feedback from the gaming community itself, with its latest innovations offering purposeful

design to match the needs of the modern avid gamer – stylish and sophisticated on the outside, yet savage on the inside, delivering supreme performance for work and play.

Spectators can expect to experience the grit and tenacity of the gamers as they band together to seize the championship title. Those who wish to be part of the excitement may also take part in the Rise of Legion walk-in tournaments, LAN party, and cosplay contests. □



Team D.O.D will represent Malaysia in the Grand Finals in Bangkok



ALITA: BATTLE ANGEL CONTEST

Terms & Conditions:

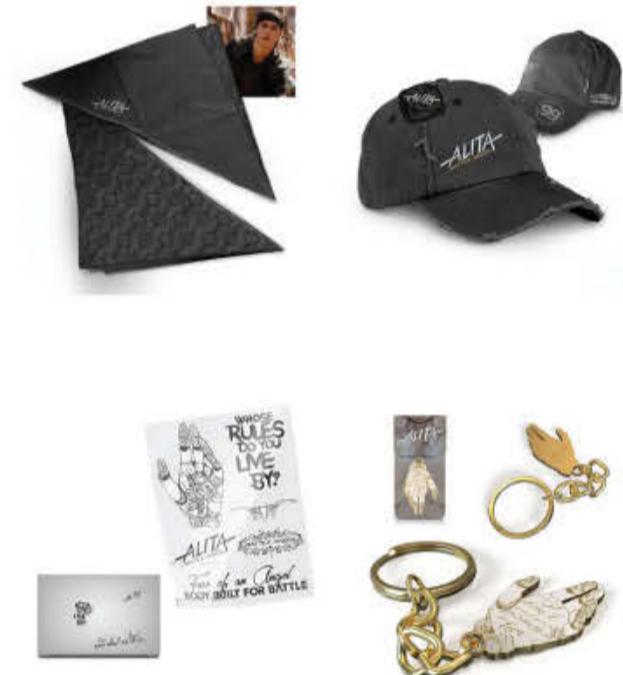
1. Contest open to all Malaysians except the employees of Online Dynamics (M) Sdn Bhd & Sony Pictures Entertainment, Malaysia.
2. Only original entry form is accepted.
3. The judges decision is final and no correspondence will be entertained.
4. Prizes are not transferable or redeemable for cash.
5. Closing Date: **31st January 2019**

6. Send your entries to:
**Online Dynamics (M)
Sdn Bhd/ALITA BATTLE
ANGEL
A-5-07, Block A
Neo Damansara
Jalan PJU 8/1
Damansara Perdana
47820 Petaling Jaya.**

ALITA: BATTLE ANGEL CONTEST

Prize

- 8 x Double Passes
- 5 x Laptop Decal
- 2 x Keychain
- 2 x Bandana
- 2 x Distressed Motorball Cap



ALITA: BATTLE ANGEL CHIP CONTEST

Questions:

- 1) What is your favourite quote from this live-action adaptation manga and anime movie.

Name: _____

I/C No: _____

Address : _____

Tel/HP: _____

Email: _____

Gaming Apps Of The Month

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

By Matthew Yap & Rikko Shim

GrandChase

Android, iOS (Free)

Set as a sequel to the original and with characters from Elsword, GrandChase is an action RPG with some degree of battle tactics required of the player.

The first thing to know is that you use a team of four characters from five main classes: Assault, Tank, Ranger, Mage, and Healer. You get to have up to five of such teams pre-configured so you can quickly swap them around for different stages or quests. Each of your available characters can equip up to five different equipment that can be upgraded. They can also be upgraded using monster card and after upgrading to the current max level you get to evolve them. There's also "Prestige" which you get access to once a character reaches +12 upgrade, then gain traits for every 10 levels of Prestige. Basically, there's a lot of room for growth in each character and you'll be spending a lot of time grinding just to upgrade your favourite ones.

In combat, your tap on the screen to move your team and tap on skills to use them accordingly. You can also tap and drag to move so that they ignore enemies till they reach the designated spot. There's also character special skills and party skills, which



add another small level of tactics. From our experience, it's not a difficult system to get used to and has enough complexity in mechanics for the game to be interesting.

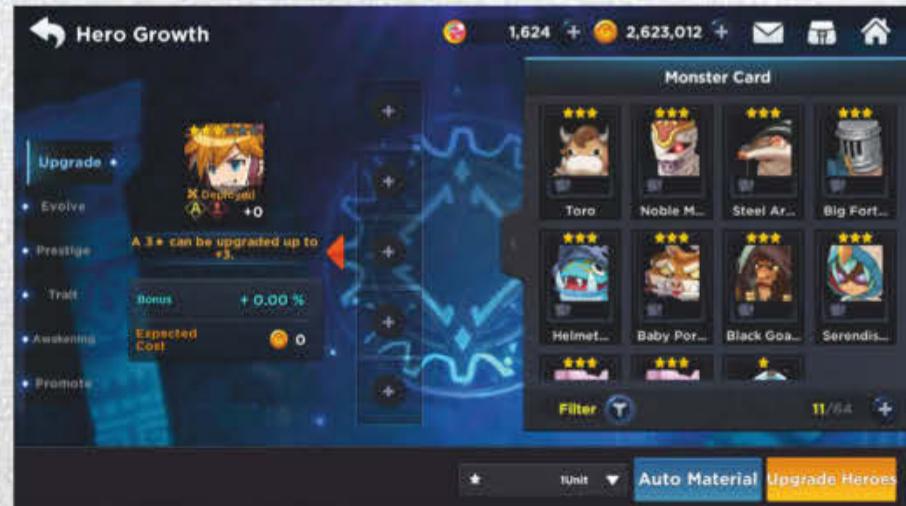
Character rarities do affect how strong characters are, meaning that you'll want to have a lot of S or SR-ranked characters as soon as possible. You do that by completing certain missions in the game or events that appear, which give you cards to randomly obtain a character from specific classes within those two ranks, or roll the gacha. However, the gacha isn't very generous, so don't depend on that too much if you can help it.

The interface can be very crowded, but it's also a good thing since less things are buried under other levels of menu. To make it even better, the response time for going from one screen to another is relatively snappy, if you are using low-graphics settings or your phone is powerful enough.

GrandChase looks like it's going to be another game with a massive grind. However, it has a very colourful design, decent soundtrack, a large roster of characters and pretty fun gameplay. If you're still hunting for a time-waster, give this one a try. ☐



The combat system is simple enough and has enough layers to it to be interesting



Hero growth makes your characters strong, but prepare for a long grind

Dust and Salt

Android, iOS (RM33.99, RM29.90)

Dust and Salt is a text and story heavy turn-based tactical RPG that plays like the older text-based games. You play as Wayward, a young kid on a quest for revenge against those that killed his father and burned his village to the ground. As you might have expected, a text based game will require you to do plenty of reading and make decisions most of the time, as it throws you to decide on doing options A, B, C or D at any given time.

During the start of the game, you will have a few crucial decisions to make, which will often affect your capability to perform certain actions and decisions later in the game. For example, one of the members of your party will tutor you in the art of speech. Later on, you will need to use this skill to persuade other tribes to lend you their armies.

Aside from talking, the other half of the game will be traversing the world and battling armies. When traversing the world, you will be given the opportunity to find out other avenues of action or talking points later in the game. For example, when we were visiting a town, we stumbled onto a pair of twins and it turns out they were the princesses of a tribe known for their naval military. We were soon able to gain ourselves some naval armies thanks to this random encounter.

Battles are turn-based, and you will be controlling your army. For example, if the game lists that you have 4 archers, then you will have an archer placed in battle with a 4 on their head, this means that they can take 4 hits before being taken out of the game unless you can recruit more armies. Being a tactical game, you have a board to move your armies around, and on each turn you can only move a specific number of tiles. If you move your cavalry archers too far ahead leave them isolated, the enemies can take advantage of that and pelt attacks on that single army. Once the battle is done, you can replay the battle again to change the outcome. If you win



the fight with just 1 archer, you will enter the next battle with that same amount of archers.

Dust and Salt is an interesting turn-based tactical RPG that has a good storyline and colourful cast of side

characters that will offer you their insight and guide you along the way. Will you be a black and white character that only does what's righteous or sweet talk your way to glory? That is up to you to decide. The game is also available on Steam. ☐



The number on the side of your armies indicate how many hits they can take



Just by advancing the story, you could lose your armies

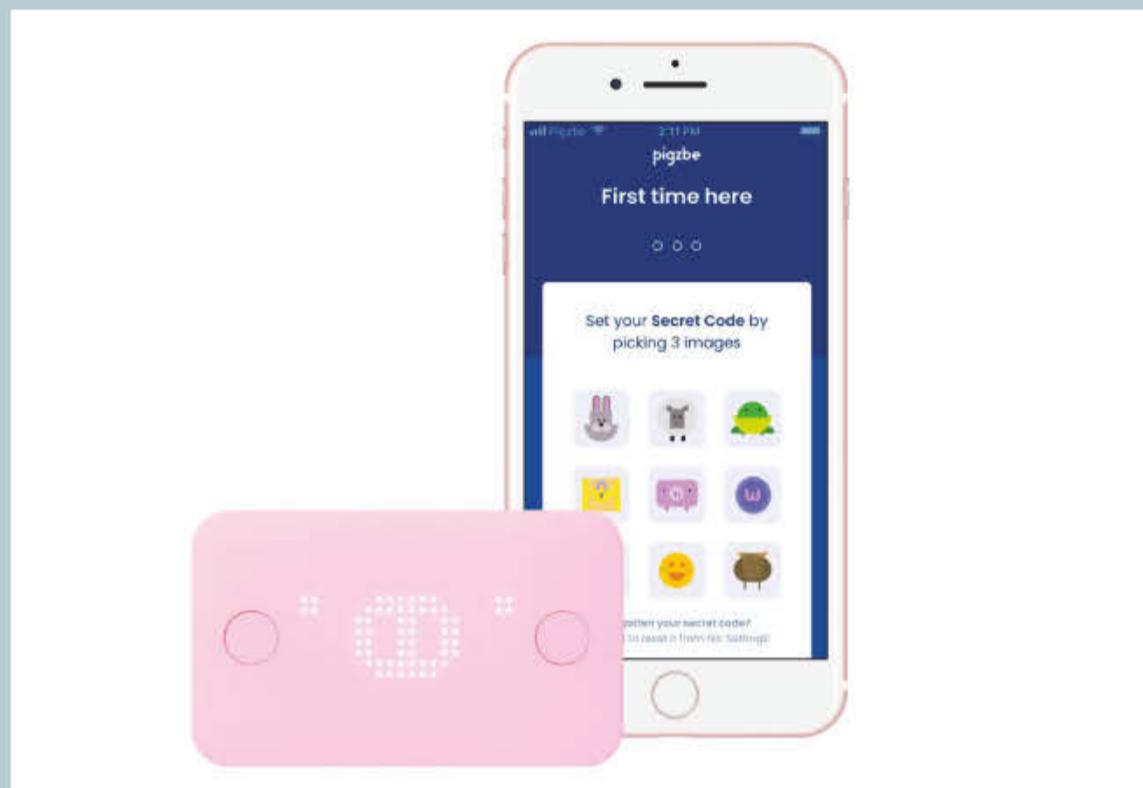
Made Possible By The Masses

Our monthly look at crowd-funded projects that caught our eyes By Matthew Yap and Nixon Ng

Pigzbe

Pigzbe is a smart device that teaches kids 6+ the value of money in a digital world. It's one of the first ever family products built using the blockchain. Today's kids live in a fast changing financial world. Digital money, contactless payments, in-app purchases and cryptocurrency are all things they need help to understand. Pigzbe makes digital money physical, so children can touch, play and experiment with it - the same way we did with the coins in our piggy-banks.

<https://kck.st/2GSE2On>



Archon

Don't like the cables and hate having space on your desk taken? The Archon is a wireless charger that can be attached to the bottom of non-metal surfaces like wood or glass, so that you can charge compatible devices that way. With this, you don't need to have a dock on the table taking up space, nor it disturbing your sleep by being a cheery mini disco light.

<https://kck.st/2qYaG68>

MEET ARCHON



She-Z-Mirror

She-Z-Mirror is a smart-mirror that analyses a user's skin condition and provides a solution by connecting the results to a real-time expert. Not only will it analyse the skin condition, it also combines a security camera function for a single family, the ability to check the daily life of pets, a Bluetooth speaker, and a light therapy function.

<https://bit.ly/2rS1O2z>

Phrozen Transform

The 3D-printing craze died long ago but there are still people who are interested in it. If you're one of them, you might want to take a look at the Phrozen Transform. This consumer-grade 3D printer aims to deliver large prints with its massive 13.3-inch print area. You can also use the dual 5.5-inch panel mode instead, which gives you the ability to do two prints at the same time. It's also compatible with a few third-party resins.

<https://kck.st/2PrFfed>



NANO1

NANO1 is the world's smallest astronomy camera. The NANO1 brings the astronomy imaging experience to you by making it lightweight and simple to use. It uses an augmented reality star map to guide you across the constellations, while its astronomy exposure preset will help simplify astronomy image settings for easier viewing. You also get WiFi control and file transfer to share your images through your smartphone.

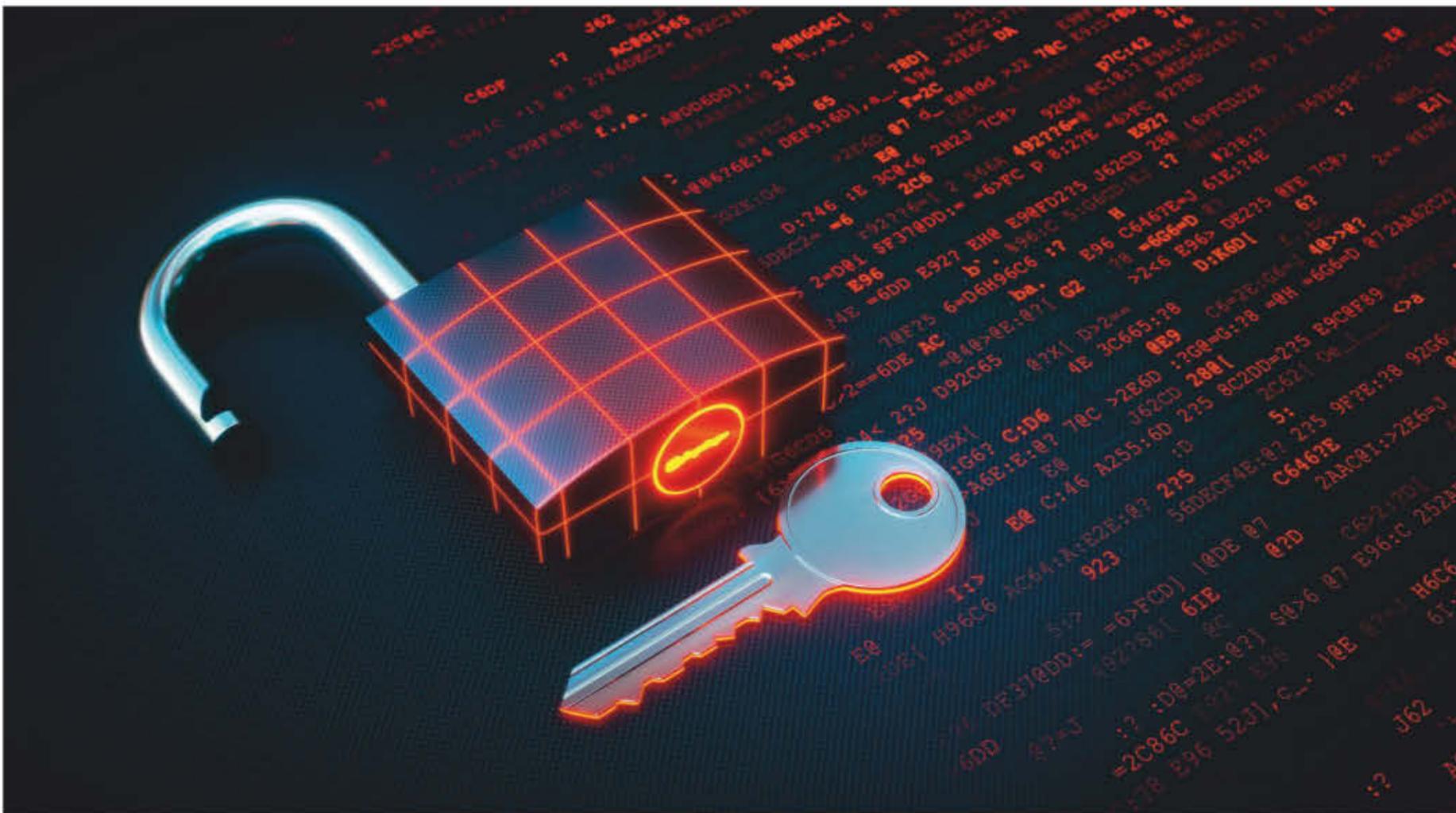
<https://kck.st/2PYFjXg>

Glo

Sometimes you want to be able to chill and relax anytime, anywhere. Glo can be useful for that, as it is a pocket-sized device that can be used to capture and magnify ambience sound, turning your everyday surroundings into musical instruments. For example, you can capture the sound of the sea waves and voila, you get some therapeutic soundscapes perfect for an impromptu meditation session. 

<https://kck.st/2RfqujB>





More Privacy For Windows 10

Initially, Microsoft had to take a lot of criticism regarding data privacy for Windows 10. Since then, the setting options are more versatile and better arranged

By Matthias Semlinger And Andreas Vogelsang

Right at the beginning of Windows 10, users have complained about data collection by Microsoft. When Microsoft announced Windows 10 and the free updates on its part, the responses were initially very positive. But as the new Windows reached the users, it was soon clear that the manufacturer has taken privacy settings very lightly and had failed to explain what data users had to disclose. With the recent updates, Microsoft has simplified the settings and summarised some central points. However, due to the large number, it takes quite some time to understand these changes. We show you the correct adjustments to overcome the great curiosity that is Windows.

More lucid and more sophisticated

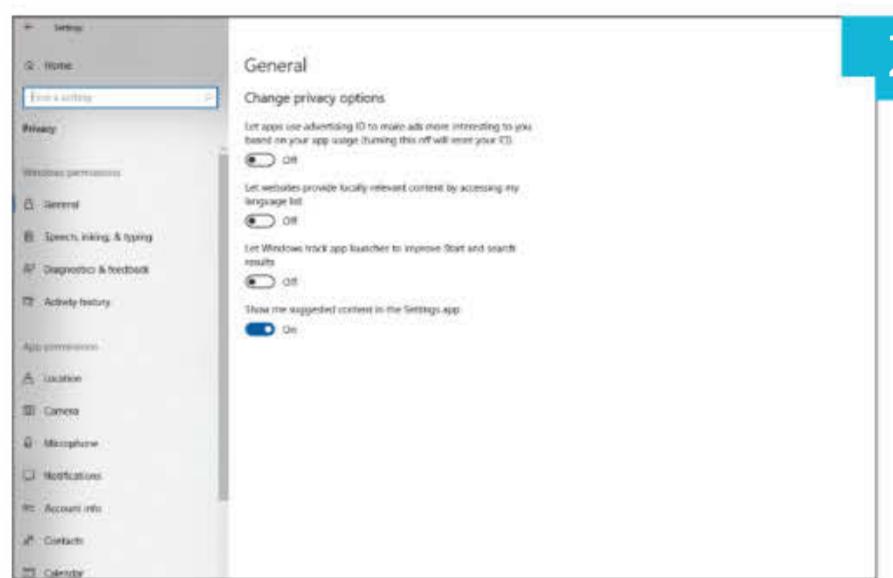
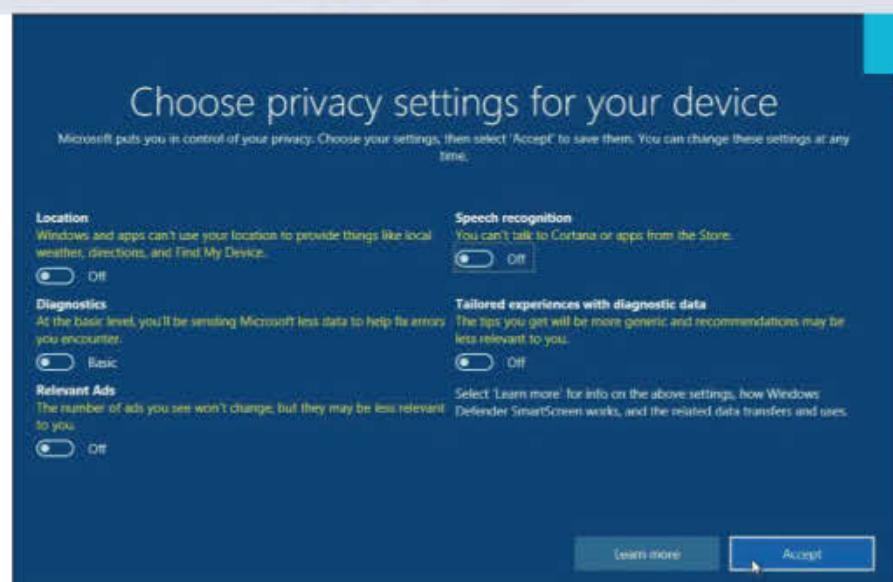
We have said this in favour of Microsoft: Powerful assistants like Google Now, Siri or even Cortana can work only if they collect as

much data as possible. But Microsoft has taken the worries of its users seriously and has improved itself. A data privacy protection dashboard has been set up to address this, which you can reach via the account.microsoft.com site. Log in with your Microsoft account. Click on your name on the top right and on "Display account". In the ribbon on top, click on "Privacy". Now, you can view and delete the Edge browser history and your location data, amongst other things; you can also view what information Cortana collects about you in the notepad. This data can be deleted as well. Meanwhile, there are other new features regarding the theme of data privacy. First, the options during the setup have been revised. Where users previously referred to the Express settings, there now appears a window with five central privacy options. Those who are reinstalling can immediately select the most important settings. There is an explanation for each point; also, a help text with a lot

of information can be opened with a click on "More information".

Data privacy versus comfort

However, determining which settings are now the "best" is all but easy. Overcautious people disable each option that they can find and are happy that (hopefully) Microsoft knows almost nothing about them. But in turn, they must sacrifice the comfort functions, such as location detection and the digital assistant Cortana. On the other hand, carefree users leave everything to Microsoft settings and claim that they have nothing to hide. But they will be very shocked when they log in and see what the software demon knows about them. For most of users, the difficulty will be in finding a compromise between the comfort and the protection of personal data. For this, it is unfortunately necessary to take some time to check the various settings in Windows or also to disable some of them. If you plan to do the latter, we recommend documenting the changes so that you can undo them later if it does not work as desired. Otherwise you can always experiment as per your wish. The following mini-workshop gives you the correct tips exactly for this. And if you are not satisfied with the results of your efforts, you can undo all the settings with a couple of clicks at the right places.



THIS IS HOW IT'S DONE

1 Default settings during setup

Immediately after Windows is installed, the system asks your choices about privacy. You can confidently disable "Relevant ads", "Diagnostics" and "Tailored experiences with diagnostic data". You should also disable "Location" and "Speech recognition" if you do not want to use those services.

2 Customise Windows settings

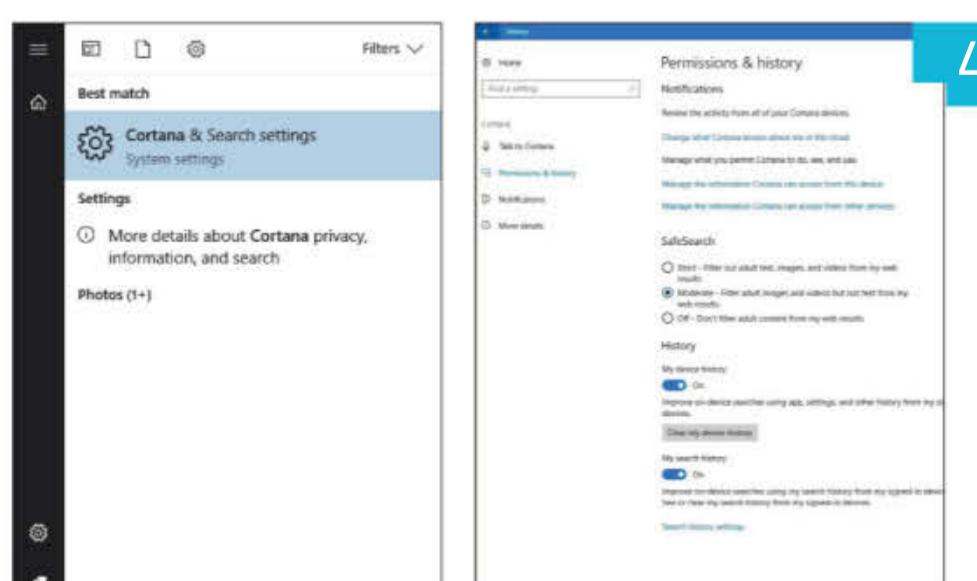
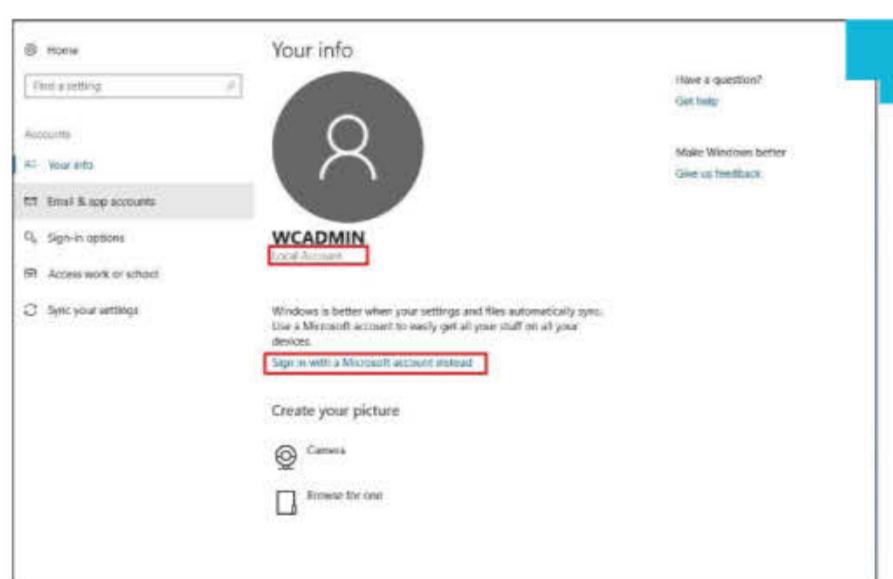
All the changes in the settings can also be made later under "Settings | Privacy" - it also has many detailed options. The location identification, like the camera and microphone access and a lot more, can be enabled or disabled for individual apps. You can separate the wheat from the chaff in this way.

3 Monitor Microsoft account

The settings lead to different links to manage the data saved on the cloud. However, you can get a better overview by clicking on "My Microsoft account" in "Settings | Account" and then going to "Privacy" in the browser. You can find all of the saved data there.

4 Rap Cortana on the knuckles

Lastly, you should visit Cortana. Enter "Cortana" in the search field and click on "Cortana & search settings". In the next window, open "Permissions & History" in the left column. Under "Permissions", you can set exactly which data Cortana is permitted to access. C



TIPS & TRICKS

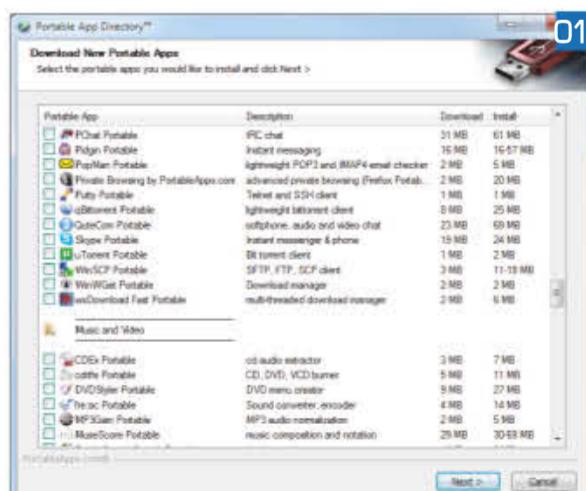
JANUARY 2019



01 Windows 10

Bypassing the admin rights with portable apps

On many office PCs, users no longer have sufficient rights to be able to install new software. However, to upgrade your favourite tool, you won't have to trouble your system admin. Many programs are available in a portable version, which can be started immediately without installation despite user rights restrictions. In order to find portable software, you can use the Portable App package management platform that includes a



You can run several programs in the portable version without Admin rights

comprehensive collection of programs in portable version, which includes the FTP client FileZilla or the picture viewer IrfanView.

02 Windows 10

Find and remove memory hogs with standard Windows applications

To trace large files, Windows 10 provides an analysis tool for memory allocation. To do this, open the Windows settings with the [Windows] + [I] key combination and click on "System". Then select "Storage" on the left side. In the main window, you will now see all the drives that are available in the system. After clicking on "This PC", Windows starts a comprehensive storage analysis, which takes a few seconds. The



The storage analysis helps to find and clean out unnecessary data on the hard disk

memory distribution is then displayed in a bar diagram. After you select a section, e.g. "Apps and Games" or "Images", Windows shows a detailed list of the storage used by individual files and enables you to uninstall the unessential programs or delete unnecessary data.

03 PowerPoint 2016

Compress videos inserted in slides

If you've inserted a video into a slide, the presentation can increase in size by several megabytes depending on the video. Meaning that if you want to send the presentation via email, it can fail due to the size limitations of mailboxes. But you can also reduce the size and quality of the inserted media using the help of standard Windows tools in PowerPoint and try to lower the total size of the presentation. To do this, go to the "File" tab. In the "Media size and performance" section, you can view the original size of the video, e.g. 26 MB. Click on "Compress media", and a menu will open, in which you can select a lower quality level. Once you choose the parameters another window is displayed, where

the compression is performed. Confirm it with "Close". Go back to the slide and start the presentation. If the quality of the videos is okay, save the presentation. You can also undo the changes via the "Compress media" menu by clicking on the "Undo" button. For very large videos, the "Internet quality" and "Lower quality" options often deliver similar results.



Quickly downsize overly large media files, using just the standard tools of PowerPoint

04 Windows 10

Display weather and system information on the desktop

With the help of Win10 Widgets, you can install widgets on your desktop. They display a lot of information on the desktop, such as the current system capacity, network information or weather forecast. This way, you can immediately see important system information at a glance. After installing the tools, some widgets like system capacity, current hard disk space or the connected wireless network are pre-set by default. If you do not need a specific widget, right-click on the widget and select "Close skin". In order to design your own skins, select "Rain meter" from the right-click menu instead and then "Manage". In the left window, you will now see a tree view with all the available skins, which are sorted into categories. Select a skin in the tree; one click on the "Load" button brings the widget on the desktop. In the lower right section, you will find other setting options, such as the screen position or the transparency value of the widget. You can find more about the various setting options of the individual skins using the "Help" button, which opens the online help in English.

05 Excel 2016

Cleverly switch between absolute and relative references

Sometimes it is necessary to install an absolute reference in your excel sheet.

An example: You record the sold units of several items in a table as well as the individual price and determine the selling price in another column. It's enough to enter the formula " $=B4*C4$ " and to fill the formula below. Both pieces of information are relative and are customised automatically row by row. Now, if you want to provide a discount, which is entered in an individual row, for example in A1 with the value 10%. Now if you enter the formula " $D4*A1$ " in the first row, the correct discounted amount will be determined. But while copying the formula, A1 changes to A2 and the result turns out to be incorrect. The correct formula must be: " $=$A$1*D4$ ". In this example, it is possible to replace the dollar sign. In case of longer formulas, it is recommended to select (such as by double-clicking) the corresponding cell reference in the editing line and press the [F4] key. Immediately, a previously relative specification changes to an absolute reference, which also does not change while copying the formula.

06 Windows 10

Change the CPU priority of programs permanently

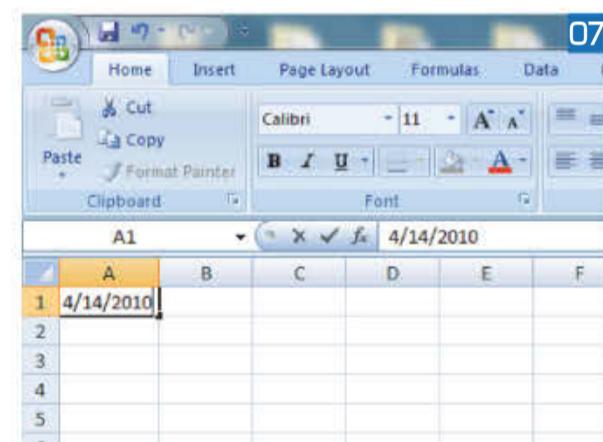
Normally in Windows, programs are running in the background simultaneously. However, the Task Manager offers you the option to run a selected application with a changed priority and also to either accelerate or stop it. To do this, start the desired application and press the key combination [Ctrl] + [Alt] + [Delete]. Here, select "Task Manager". Now, go to the "Details" tab and search the recently started program in the application list. Right-click on the application and scroll to the "Set priority" option. In the subsequent drop-down menu, you can assign priorities between "Low" and "Realtime" with the latter being the highest value. However, this customisation is not permanent, because the priorities are restored to normal after restarting Windows. With the help of the System Explorer (systemexplorer.net) software, a program can be permanently assigned a certain priority. After opening Tools,

select the corresponding application from the program list with a right-click and also set the "Permanent" value along with the priority. The settings will then remain unchanged even after a restart.

07 Excel

Add current date and time using shortcuts

When creating several tables, it is recommended to add the current date or time. Instead of programming a macro in a complex way, you can simply use shortcuts. Select the desired cell and press [Ctrl] + [.] in order to add the current date. The current time can be inserted in the selected cell with the key combination of [Ctrl] + [Shift] + [.]. Note that the time stamps saved in this manner are static and are not updated during the changes. If you want a continuous update during changes or while reloading the worksheet, you should save the "=Now()" function in the corresponding cell.



Excel has shortcuts, with which a time stamp can be inserted at the touch of a button

08 PowerPoint

Superimpose additional information from the internet

Just like in other Office applications, PowerPoint also offers the option to obtain additional information from the internet about a topic, such as a scientific term. To do this, first select the word or the text, open the "Review" tab and click on "Intelligent search". Now, a column opens on the right side of the slide, which has information from the web or – if available – from Wikipedia entries.

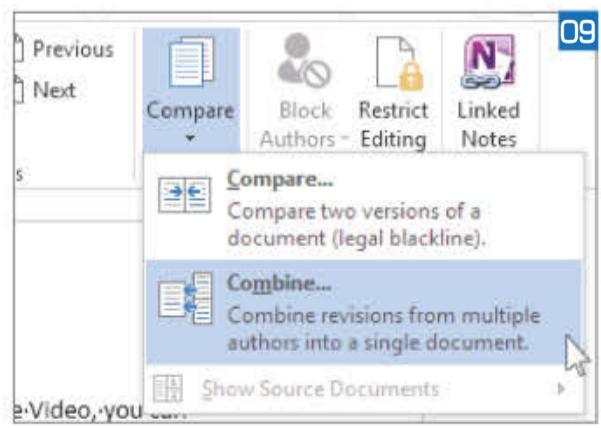


The search function in PowerPoint shows additional information from the internet if required

09 Word

Merge several Word documents in one file

Sometimes, several Word documents need to be merged into a single file. Instead of opening all the documents individually and copying the respective texts into the target file, there is a smarter way to do this using the Object function in Word. First, open the Word document, which is supposed to be at the beginning of the file. Then go to the "Insert" tab and click on "Object". From the drop-down menu, select the option "Text from file". Next, search for the documents, which you want to add. By pressing the [Ctrl] key, you can also simultaneously select and add multiple documents.

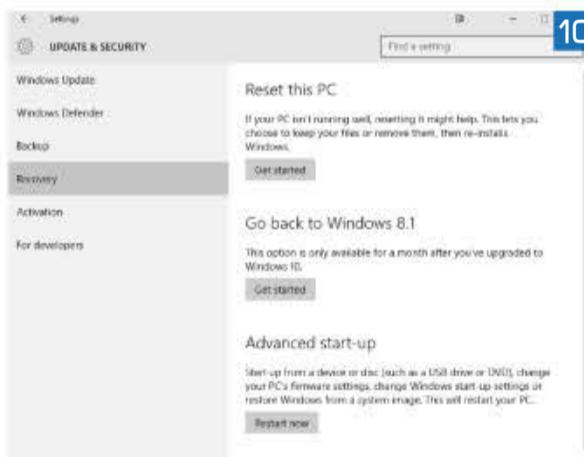


Multiple Word documents can be merged into one file via Object function in Word

10 Windows 10

Reset system to the factory default settings

If you decide to hand over your used computer to another party, you should always thoroughly delete your personal data before doing so. Similar to smartphones, Windows 10 also has a factory default settings tool, which can do that for you easily. Open the Windows settings using [Windows] + [I] and go the "Update & Security" module. Select the "Recovery" option on the left side. In the "Reset this PC" section, you will find a "Get started" button. After clicking on it, you can decide more accurately as to what should be deleted. In order to delete all of your personal data, you should select "Remove everything". The subsequent dialogue box offers the option to delete your personal documents or securely clean the hard disk storage. As the first method allows for easy recovery of data, to be on the safer side, go to "Remove files and clean drives". In the last step, confirm the procedure again with the "Reset" button in order to start the deletion of all files. The reset takes a few minutes, depending on size of your hard disk. After that, restart Windows and you will find it in the delivery state.



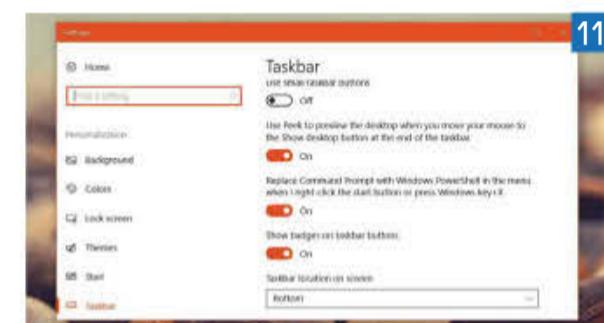
The factory default settings allow you to remove all the private data quickly and thoroughly

11 Windows 10

Replace PowerShell and DOS input in the Admin menu

The fastest way to open the command prompt is via the Administrator Tools, which can be opened either using the [Windows] + [X] key combination or via right-click on the Windows

logo. However, since the Creators Update, Microsoft has replaced the command prompt with the PowerShell. If you want to continue using the input prompt using this method, you can customise this in Windows personalisation. To do that, open the settings using [Windows] + [I] and go to "Personalisation". Click on the "Task bar" on the left side. Here, there is a switch next to the "Replace command prompt with Windows PowerShell" in the menu when you right-click the start button or press Windows key + x" option. Once you switch this button "Off", the DOS command will be displayed again.

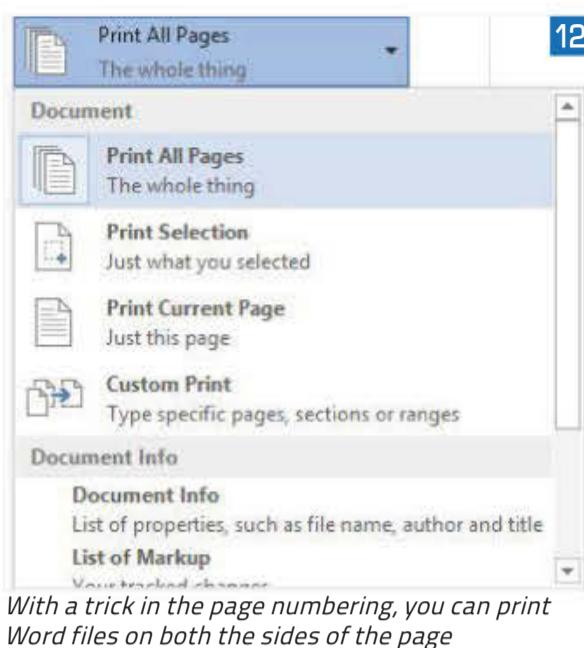


Replace the PowerShell in the Admin tools if you prefer to use the DOS prompt

12 Word 2010

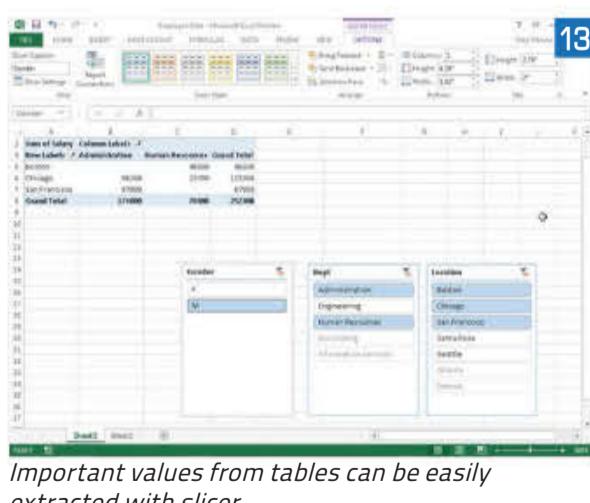
Print on both the sides of documents without a duplex printer

There are exceedingly few people with duplex-printers, which give the ability to print on both the sides of a paper. However, you can recreate this function in Word with a trick and without buying expensive hardware. To do this, open the file to be printed in Word. Then go to the "File" tab on the top and select "Print" on the left-side menu. Now in the drop-down menu in the "Settings" section, select "Print all pages". Here, select the "Print only odd pages" option. Now, these pages represent the front sides in our print project. Once you've confirmed the settings, print the document as usual via "Print" button. After printing the first batch, put the rear sides of the paper stack reversed in the paper tray of your printer. Now, go to the print menu as described above and select the "Print only even pages" option from the drop-down menu. After clicking "Print", you will find your double-sided document ready in the output tray.



13 Excel 2016 Filter cell values easily via data slicer

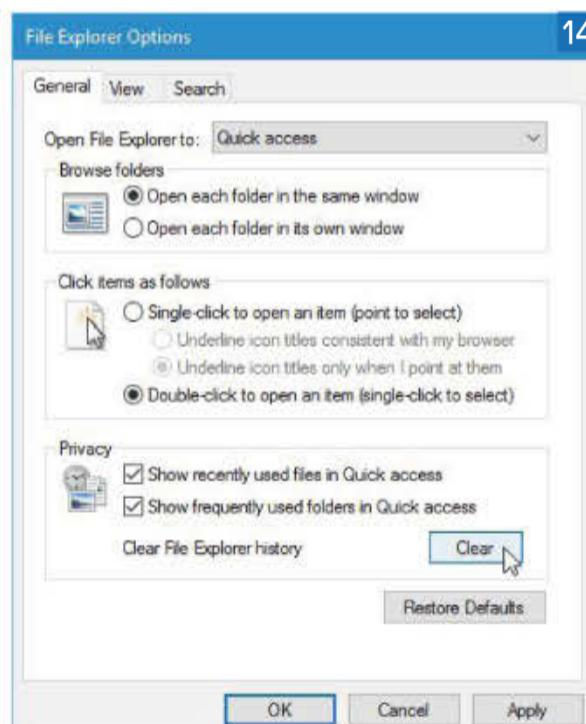
A clean method of filtering data in a comprehensive table is the slicer feature. In the example, we have a table about clubs, including names, departments and monthly fee. Select the table including the headings, switch to the "Insert" tab and select "Table". In the next window, the selected fields are already entered. Note that the "Table has headings" option is selected and confirm it with "OK". Now click on any random entry in the table and go to the "Insert" tab again. This time, click on the "Slicer" symbol in the "Filter" field. In the following window, put a checkmark in front of all headings and confirm with "OK". Now, multiple windows are superimposed, which you can place as desired on the spreadsheet using the mouse. Each window includes the available data for the respective heading. Now, click on an entry in one of the windows, like on "Football" in the "Department" window and you will see that only associated members as well as the monthly fee will be displayed.



Important values from tables can be easily extracted with slicer

14 Windows 10 Finally delete all the used files in the Explorer

Windows saves previously opened locations and documents in the quick access list. This can be seen through the address bar of the Explorer. If you share a PC with another user, this can sometimes be an undesirable situation. However, you can reset the list with a few clicks. To do this, open the Windows Explorer with the [Windows] + [E] key combination. In the top bar, switch to the "View" tab. Click on the "Options" button on the extreme right and a new window opens. There, you will find the section called "Privacy". Here, click on the "Clear" button next to "Clear File Explorer history". The list of used files will finally be empty. If you want to disable the storage of the path, deselect the check sign for "Show recently used files in Quick access" as well as "Show frequently used folder in Quick access".

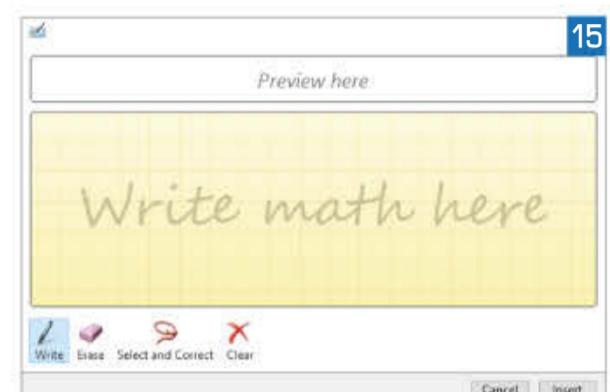


Disable revealing process traces in the Privacy module of the Explorer

15 PowerPoint Design formulas via mouse and insert them on to slides

A lesser known function of PowerPoint is the option to design mathematical formulas and to then transfer them on to a slide. To do this, open the "Insert" menu, click on "Equations" on the top

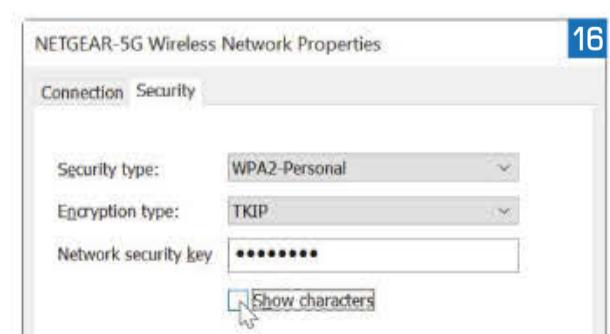
right side and in the menu below on "Insert new equation". In the next window, formulas can be designed, which can be inserted on to the slide by clicking on "Insert". The design is then carried out in the central field, where PowerPoint shows the detected result in the row above that.



PowerPoint converts the signs into appropriate mathematical symbols

16 Windows 10 Viewing forgotten Wireless network password

As Wireless network passwords need to be more complex nowadays for security reasons, some can't always remember the password from memory. However, these passwords can be quickly viewed under Windows 10. To do this, right-click on the network icon in the system tray of the taskbar and select "Open Network and sharing centre". In the "Connections" section, those network connections that have an internet access are displayed to you. Here, click on the name of your wireless network and open the detailed overview of your WiFi connection using the "Wireless properties" button. Then, go to the "Security" tab and activate the checkbox for "Display characters". Now you can read the forgotten password as clear text.



The network centre shows you the forgotten wireless network passwords in clear text

17

Windows 10

Creating a list of all the installed drivers at lightning speed

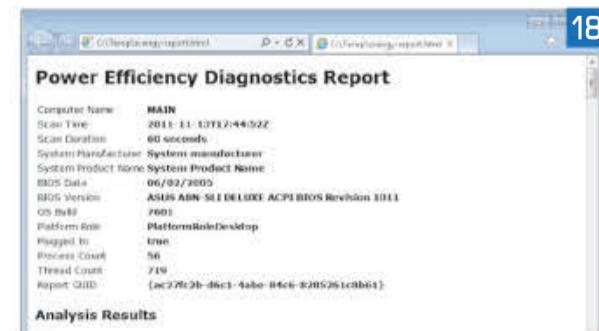
In case of driver-related problems, you must first find out the driver versions that are currently installed on your PC. The PowerShell offers a useful way to do this, which lists all installed drivers. In the Cortana search bar, search for "PowerShell". Then, right-click on the PowerShell icon in the results and select "Run as Administrator". Next, enter the following command: "Get-WindowsDriver –Online –All | Out-File –FilePath \$env:USERPROFILE\Desktop\Treiberliste.txt". A text file called "Driver list" appears after a couple of seconds, which has all the drivers along with version.

18

Battery

Analyse the energy usage and expose memory hogs

If your laptop battery gets empty unusually fast, the energy settings provided in Windows unfortunately gives only limited information about the power consumption and energy efficiency of the built-in devices. However, with a tool kit in the command line, a detailed report can be created. Right-click on the Windows start button and open the command prompt with administrator rights. Enter the following: "powercfg –energy". The command generates a detailed energy report, which can be found in the C:\Windows\system32\ folder as "energy-report.html", which you can open with any web browser. The fields highlighted in red indicate the power hogs and battery problems such as missing driver, yellow and white are warnings and information, as to why certain power saving functions are not applicable.



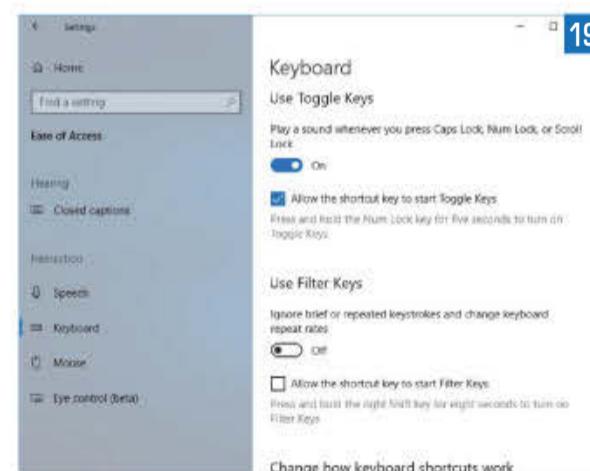
The report created via the Shell command is a useful alert system in case of battery problems

19

Keyboard

Play warning sound if Caps Lock key is pressed

Special keys on the keyboard such as the Caps Lock key, Scroll Lock key or Num Lock key are often pressed accidentally, which results in annoying errors during typing. In such cases, a lock symbol is sometimes visible on the screen, which shows an opened or closed lock whenever a key is enabled or disabled. But these symbols disappear quickly and are sometimes not noticed immediately. Also, the LED on the keyboard is sometimes so dim that it is overlooked. The alternative is to keep the [Num] key pressed for five seconds till a window appears. Confirm it with "Yes", now you hear a warning sound every time a special key is pressed accidentally. Repeating it again disables the key, which is again confirmed with a new sound. The overall warning sound function can be disabled, if required, by pressing the [Num] key for approximately five seconds. If the warning sound is not enabled, you should check the "Settings" under Windows 10. Open it and select "Ease of Access". Then click on "Keyboard" in the "Interaction" section on the left side. If there is no check sign for the "Allow the shortcut key to start Toggle Keys" setting, place a checkmark by clicking on it.



You are immediately alerted if you have accidentally pressed a special key by means of a warning sound

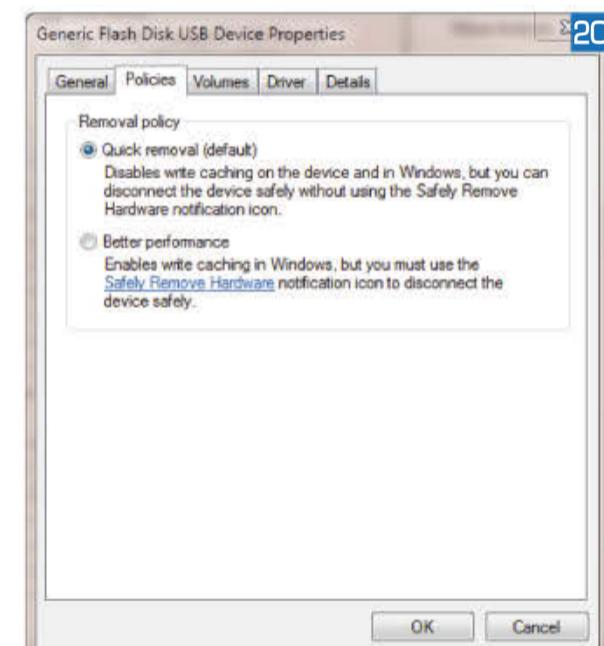
20

USB Devices

Speed up USB drives with write cache

In the latest Windows versions, removing a USB flash drive without securely removing it does not lead

to any loss of data as the data is copied directly on the device through a write cache. The disadvantage is that the copying process lasts for a long time. In order to speed up your USB flash drive, you can reactivate fast buffer memory as follows: Press the [Windows] + [X] keys in Windows 10 and open the device manager. For Windows 7 or 8, search for "Devices" in the Cortana search field of the taskbar and select the result of the device manager. In the tree under "Drives", right-click on the corresponding USB drive and go to "Properties" in the context menu. In the "Policies" tab, you will find the "Quickly remove" option, which is active by default. Now, select the "Better performance" option instead and put a checkmark for "Use write cache on the device". Now restart your computer so that the changes will be applied. Copied data should henceforth be saved somewhat faster in the external memory. However, note that in the future, you should always select "Eject" or "Remove hardware securely" before removing the USB drive order to avoid data loss.



The writing on USB drivers is accelerated with the help of the buffering in the RAM

21

JustWatch

Online database for film and series streams

On JustWatch (www.justwatch.com), you can enter the name of any TV series or a film title in the search field and get all streaming portals, which currently have the title to offer. In this

Subscribe To CHIP

WEST MALAYSIA

1 year = RM118.80 + 4 Free Issues
6 months = RM59.40 + 2 Free Issues

EAST MALAYSIA

1 year = RM138.80 + 4 Free Issues
6 months = RM69.40 + 2 Free Issues

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

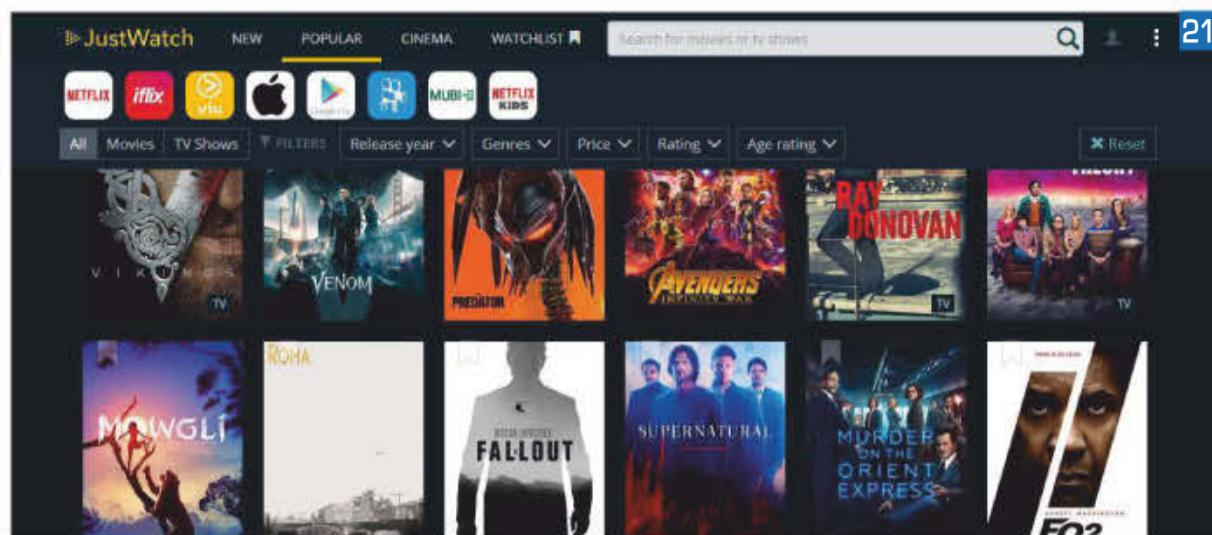
Date



Conditions : • **FORMS WITHOUT SIGNATURE AND WHICH ARE INCOMPLETE WILL NOT BE PROCESSED** • Kindly send in subscriptions together with payment • Subscriptions received via fax will only commence on receipt of cheque . Please write your name & address on the reverse side of the cheque • Credit card orders will commence on receiving the authorization from the credit card company • In case of subscription is damaged during transit, replacement may be made if sufficient evidence of the damaged subscription is received within 7 days of receipt • Subscription may be cancelled at anytime and receive full refund on unmailed issues, minus RM10.00 for administration charges • Please allow 4 - 6 weeks to process each subscription.

Contact: **Online Dynamics (M) Sdn. Bhd.**

A-5-07 Block A, Neo Damansara, Bandar Damansara Perdana, Jalan PJU 8/1, 47820 Petaling Jaya, Selangor, Malaysia Tel: (603) 7727 6554 Fax: (603) 7727 3554



In one glance, JustWatch shows which portal offers a stream and at what price

way, you can find quickly whether the clip is available as a subscribed service or whether you must separately purchase the stream. In addition, the overview for the price comparison helps and shows you the best offers available. The database not only includes all big streaming providers like Netflix or Amazon Prime Video, but also free services like Netzkino.

22 Android

Setting up call-forwarding to a second device

So that you don't miss any important calls, you can easily set up a call-forwarding option on a second device. To do this, open the phone app in your mobile. Then click on the three vertical points on top right side to open the menu. Select "Settings". Now select "Call". If you have a device with dual SIM, you must select the corresponding



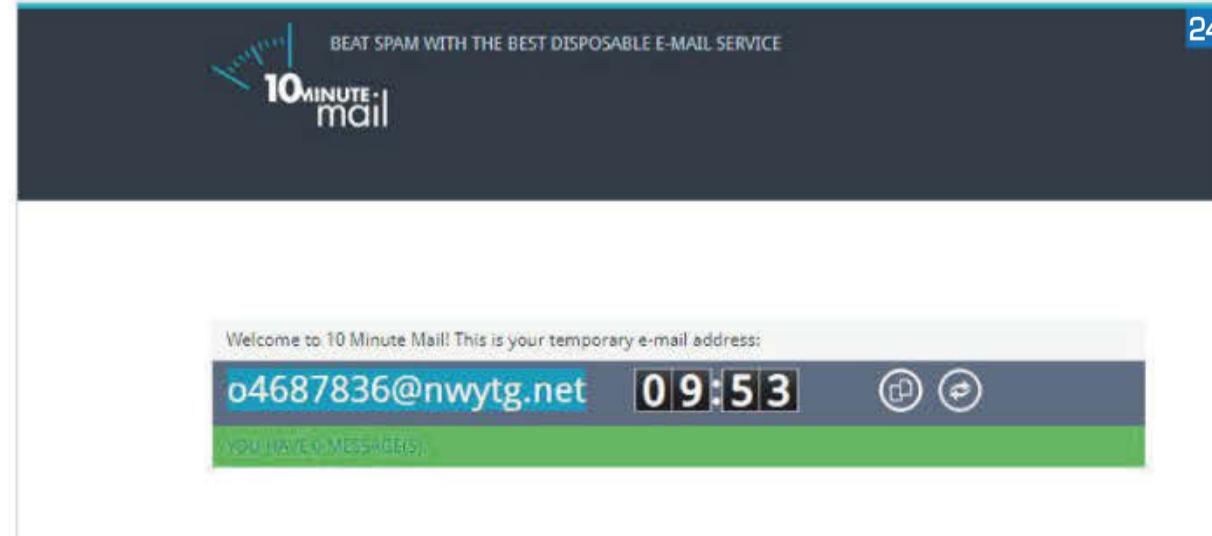
Simply forward your calls if you are temporarily unavailable on a device

SIM card through the "Call accounts". Then go to "Call routing" to view the available forwarding options. Select the "Always forward" button to permanently transfer the calls to second device. Now you can enter the number of the second phone in the input field. Alternatively, go to the "If engaged" or "If not available" in order to not miss new calls during a conversation or your own absence. For pre-paid accounts, the forwarding option may be locked and it results in an error message.

23 SADD

Use Windows or Kali-Linux in the web browser

Using the SADD anonymiser (www.sadd.io), you get a complete virtual representation of the Windows or Linux desktop on the internet. The operating system can be started as a virtual machine directly in your web browser. The purpose of this service is to prepare a completely anonymous environment to safely browse. The desktop is based on the remote



Using 10minutemail, you get a temporarily valid email address without registration

viewer VNC, while your web browsing activities will be encrypted using the anonymiser Tor. Currently, the offer can be used free of charge. Select the website and click on the "Free Trial" button. Then pick either "Windows" or "Kali Linux" as the desktop and place a checkmark in front of the Google captcha. You may get an error message that freeslots are not currently available. If so, try again after some time. After solving the captcha, you should see a green progress bar. If it appears, it means you have grabbed a free slot and your desktop will be prepared. Also, confirm the connection to the VNC Client again when starting by using the "Connect" button. If you have chosen Windows, a Windows 7 desktop should appear in the browser window. You can use this as usual and start Firefox, Chrome or the Internet Explorer in the taskbar to browse.

24

10Minutemail

Use temporary mail address for online registrations

You have discovered an interesting web service, but you don't want to save your private email address to set up a user account? In that case, a disposable email address is available as an option for quick test registration. You can get a valid email address for 10 minutes from 10minutemail (<https://10minutemail.com>). A quick visit to the website will generate a temporary mailbox with an email address for you. This is displayed to you directly next to a countdown timer, which is set for 10 minutes. You can use this address to activate the user account. If you need the email address

24

for a little longer, click on the button with inverse arrow symbol.

25 Adobe Photoshop

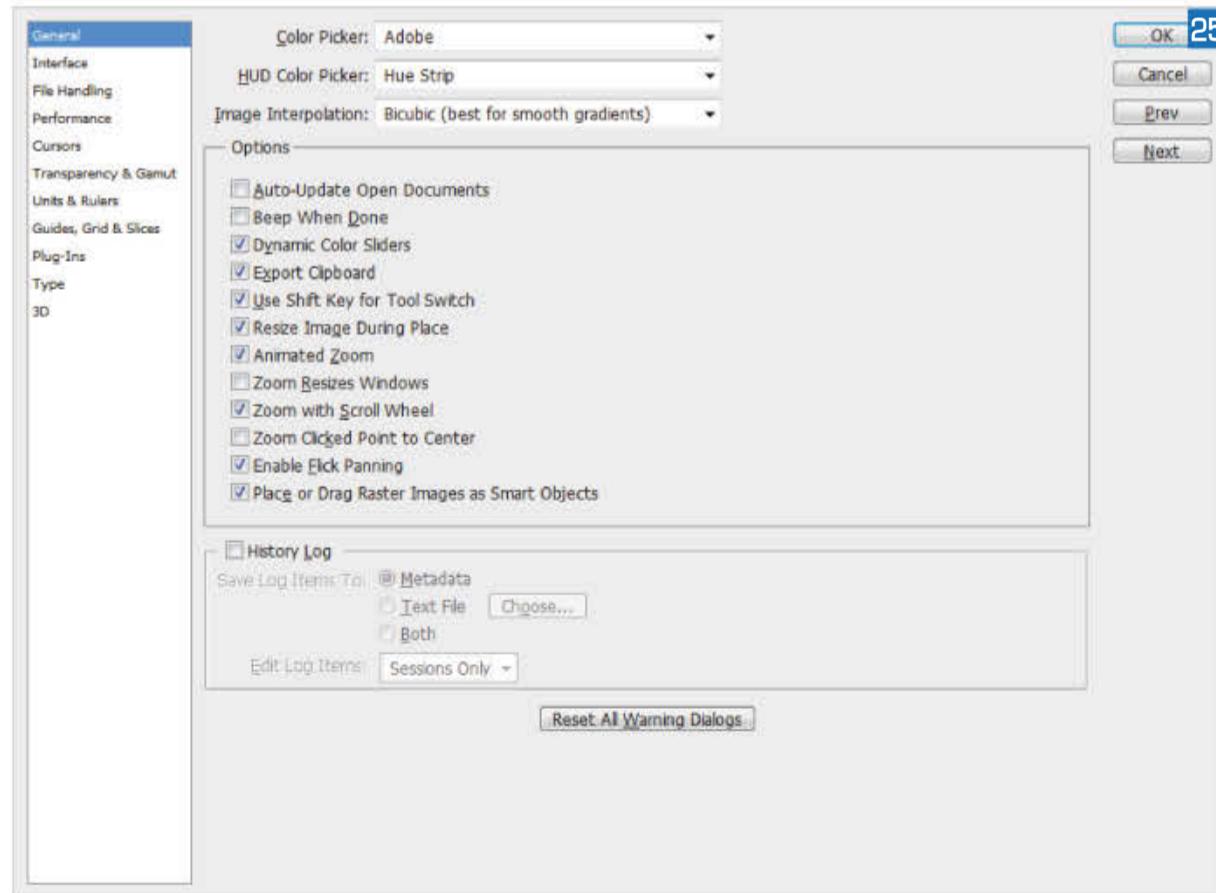
Zoom in with the scroll wheel of the mouse

Normally, you must click on the zoom tool symbol or activate it via [Z] key, before you zoom in on a photo. It is easier if you decide to change the default settings of Photoshop. To do this, open the "Edit" menu, select "Default" and then "Tools". Put a checkmark in front of "Zoom with scroll wheel" and confirm it with "OK". Now you can immediately use the mouse wheel to zoom-in or zoom-out.

26 Google Chrome

Remove disturbing elements on websites with a mouse click

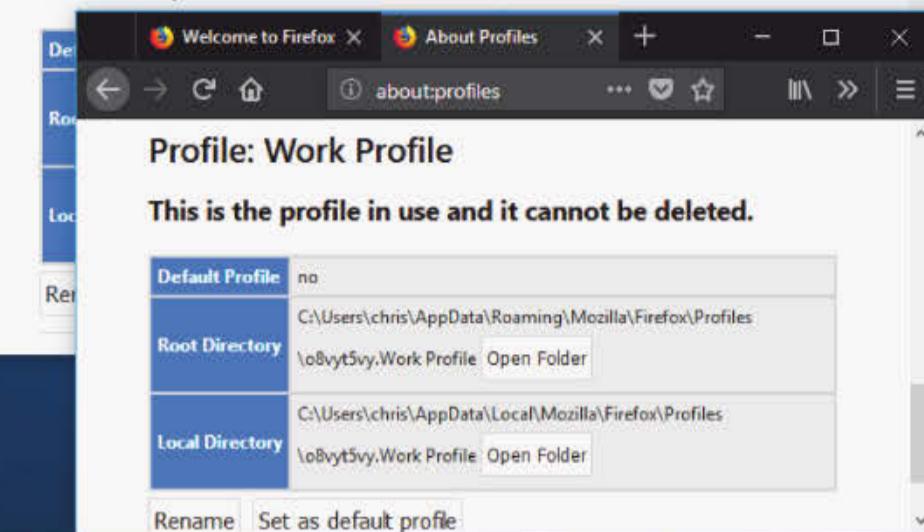
You can remove unwanted elements on websites with the help of the Chrome extension "Printliminator" with just a click. It is a quick fix for annoying ad banners, but is also handy while taking a print of websites to extract the text in the printed documents. Enter "chrome://apps/" in the address line of Chrome and click on the web store. Now, search for "Printliminator" and install the add-on



It is easy to zoom in to Photoshop by assigning the function to mouse wheel

Profile: default

This is the profile in use and it cannot be deleted.



Switch easily between different identities with tab environments

using the "Add" button. You will now see a new button in the symbol bar on the top right side, next to address bar. The Printliminator is activated with just a click of a button. Now you can just click on an unwanted image on a website, and delete it. You can see which page element is currently in the focus on the Printliminator with the read frame. This can be repeated for multiple annoying elements till the result is to your liking. In order to repeal the removed elements, select "Undo last" in the drop-down menu of the Printliminator icon. With "Send to print", the modified website is sent to your printer.

27

Mozilla Firefox

Easily manage multiple identities in Firefox

Simultaneous logins on several social media accounts, switching between different tabs, having both a professional and private user account, or restricting internet traces on a browser profile – Firefox can now do all this with the help of the "Tab environment" function. To use this feature, click and hold on the plus sign to start a new tab in the Firefox menu. It will also open a drop-down menu, from where you can select profiles like "Private", "Work" or "Banking" from different pre-defined profiles. After selecting a profile, you can see a new tab, in which your online identity and the associated cookies are separated from the other tabs. In this way, you discourage unwanted user tracking of websites and it is unnecessary to delete the browser history, to login again or to use multiple browsers. The tab environment can be identified with the coloured strips above the tab; in addition, the active profile is displayed on the right side of the Firefox address bar. In order to customise the functions to your requirements, select the "Manage environments" point below the pre-defined profiles. Now, you can see a list of your pre-defined environments and can set a new name for them through "Preferences". With "Add new environment", you can create any number of other profiles you want, if required.

28 Windows 10

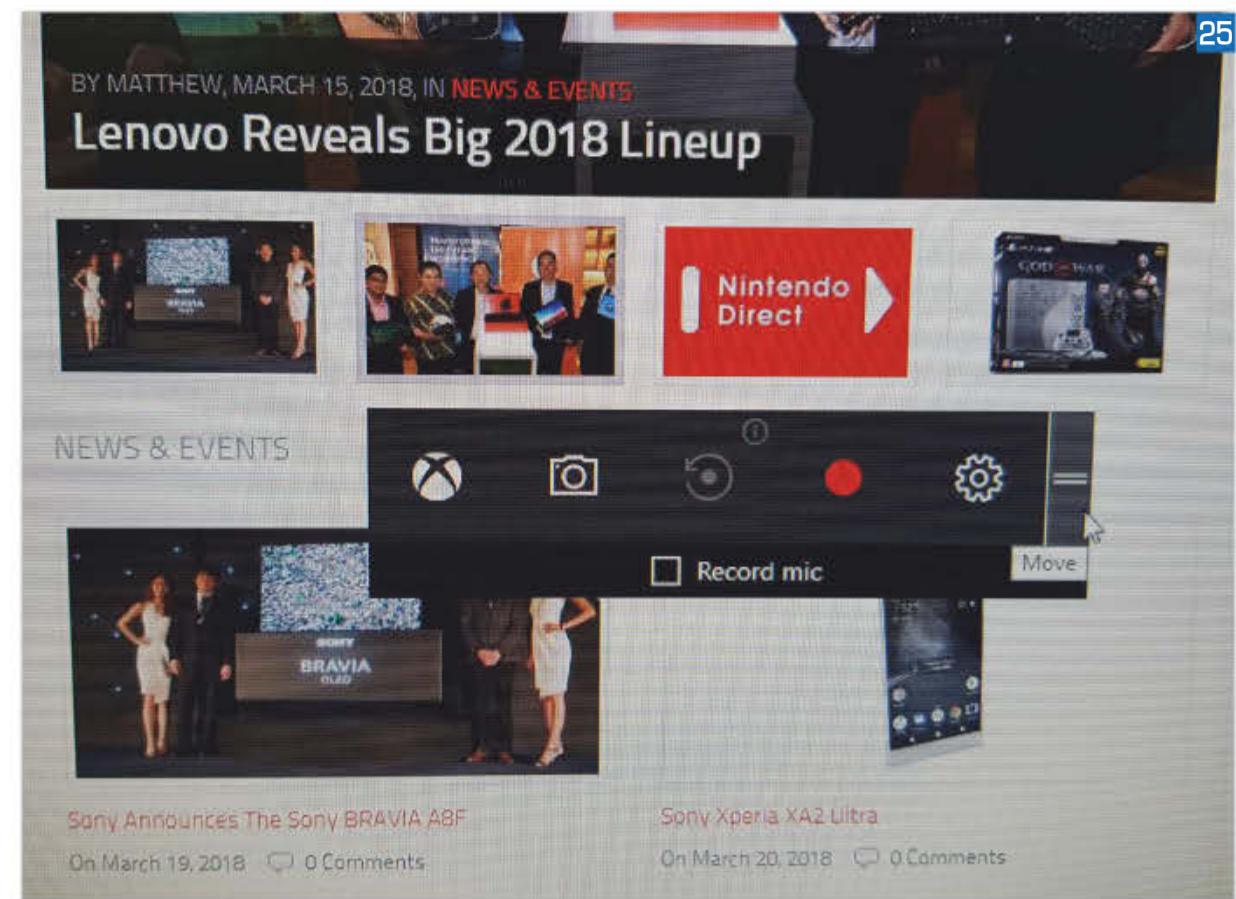
Take screenshots using "Game Bar"

If you would like to spontaneously take a screenshot while using an app for documentation purposes but do not have a proper tool, the "Game bar" of the Xbox app on Windows 10 can help. Open it with the [Windows] + [G] shortcut. During the first start, confirm the "Do you want to open the game bar?" system message by clicking on the checkbox in front of "Yes, this is a game". After that, the game bar opens. Take a screenshot by clicking on the camera symbol, which is saved in the "Videos" library in the "Recordings" folder as a PNG file. Please note that the game bar can only be accessed within another app, not from the desktop or Explorer. If your computer fulfills the hardware requirements for videos, videos can also be recorded within an app. Otherwise, you will receive a corresponding error notification.

29 Hardware

Turn Your Mouse Into A Laser Pointer

When you forget to bring a laser pointer for a presentation, since



Take screenshots using the Windows 10 Xbox app's Game bar

In PowerPoint 2010 there's a feature that can turn your mouse into a laser pointer. When you've begun your presentation, hold the Ctrl key down while pressing your left mouse button, and it'll turn into a laser pointer until you let go of the mouse button. Due to the many colours you can use for your background in PowerPoint, there are ways to switch the colour of the laser pointer to suit the colour of your background. Just find the Slide Show

tab and click on "Set Up Slide Show" and on the bottom right you should notice the option "Laser pointer color", which has a drop-down menu for selecting a new colour. From there, just confirm with the "OK" button and you're set to begin your presentation.

30 Google Docs

Creating Word Columns in Google Sheets

There's a nifty feature in Google Docs that allows you to create word columns. This is an advantage when you're writing for a pamphlet, brochure or newspaper and will give a rough idea what it would look like. This is also advantageous if you wish to place notes on subjects or topics. To do this, find the Format menu and move to "Columns". From there you can choose between having one, two, or three columns, but if you require more customisation just click on "More options" and a new window will open. In the new window you can customise the columns more with options to adjust the spacing, number of columns and whether you would like a line between columns. You can format parts of your text individually by highlighting the text you wish to turn to columns and follow the same procedure.

Column options

Number of columns

3

Spacing (inches)

0.5

Line between columns

Column order

Left-to-right

Apply

Cancel

Create multiple columns in Google Docs



Some light show and dance at the GIGABYTE Aorus Gallery



All smiles for the new Acer Swift 5



Jorise Lee, one of the top influencers in Malaysia, showing off the new Sony WF-1000XM3



Going through the maze set-up by Xiaomi, a Mi Maze?



Two dancers gearing up for a performance at the ROG launch



Seems like you can even buy property on Lazada now, pretty wild!

in the next issue

FEBRUARY



The big tech showcase in Las Vegas is back again and is expected to have a plethora of interesting new products.

Look out for our coverage on it next issue!

A screenshot of a computer screen displaying a terminal window with green text on a black background. The text appears to be Java code. Overlaid on the bottom left is a semi-transparent white box containing the text "CRYPTO JACK IN".

CryptoJack In

Cryptothievery Is The New Crime

At times you hear of cybercafé employees implementing crypto mining software into their computers without permission, but what if this is done on a larger scale?

A close-up photograph of a computer screen showing a blurred image of the word "data" in black on a light-colored background. The screen pixels are visible.

Don't Lose Yourself

Your computer can be considered a reflection of yourself, especially when it's your personal computer. You keep a lot of important data which include videos and pictures, so why not prevent data loss and prepare yourself.

know the **future**

COVER STORY

Our main feature of the month which gives an in-depth coverage of today's most exciting technological issues and trends

REVIEWS

Professionally conducted and in-depth in nature, our product write-ups are the only reviews you can trust

CHIP DOWNLOADS

Contains all the useful tools and essential applications everyone will ever need



read **CHIP**

The first word on how technology is changing our world. With professional analysis, latest reports, and informative guides, CHIP remains reputed as the *internationally trusted technology magazine*

FEATURES

Incredibly useful and informative feature articles give you the lowdown on the latest IT and technology trends

PRACTICE & TIPS & TRICKS

Our handy guide provides you with the application know-how to further enhance your IT experiences

LITE & LEISURE

Think, Touch, Read, Watch and Play on the lighter side of IT



To Subscribe or Advertise:
Call 603 7727 6554 or log on to [www\(chip.com.my](http://www(chip.com.my))

facebook CHIP Malaysia **twitter** @CHIPMY

LEGION

STYLISH ON
THE OUTSIDE
SAVAGE ON
THE INSIDE

Different games better



Lenovo[®]

FIND OUT MORE: 1800 81 8478

www.lenovo.com/my

www.facebook.com/LenovoMY

www.twitter.com/Lenovo_MY

AVAILABLE AT:

LENOVO EXCLUSIVE STORES: KUALA LUMPUR: Brightstar Computer Sdn Bhd (Plaza Low Yat) • D' Mobile Sdn Bhd (Plaza Low Yat) • FCC Retail Sdn Bhd (Mid Valley) • SNS Network (M) Sdn Bhd (Plaza Low Yat)
SELANGOR: FCC Retail Sdn Bhd (Digital Mall Section 14) • IT Comp Sales & Services Sdn Bhd (One Utama) • IT Comp Sales & Services Sdn Bhd (The Mines) • Pro Trade Marketing (Plaza Alam Sentral) • Thunder Match Technology Sdn Bhd (IOI City Mall) JOHOR: Grex Multimedia (Danga City Mall) PAHANG: Core ICT Sdn Bhd (Berjaya Megamall) PENANG: Mind Maker Sdn Bhd (Komtar ICT Mall) PERAK: SNS Network (M) Sdn Bhd (Ipoh Parade) TERENGGANU: Aidea.com Technology (Jln Kampung Dalam, K. Terengganu) and also available at Lenovo authorized retailers.

©2018 Lenovo, all rights reserved. Lenovo and the Lenovo logo are trademarks or registered trademarks of Lenovo in the United States, other countries, or both. Ultrabook, Celeron, Celeron Inside, Core Inside, Intel, Intel Logo, Intel Atom, Intel Atom Inside, Intel Core, Intel Inside, Intel Inside Logo, Intel vPro, Itanium, Itanium Inside, Pentium, Pentium Inside, vPro Inside, Xeon, Xeon Phi, Xeon Inside, and Intel Optane are trademarks of Intel Corporation or its subsidiaries in the U.S. and/or other countries. Microsoft and Windows are registered trademarks of Microsoft Corporation. Every effort has been made to check accuracy. Lenovo will not be liable for any inadvertent error which may occur in editorial or typography in this advertisement. All images are for illustration purposes only.

Lenovo Technology Sdn. Bhd. (685098-H)