

SINGAPORE-BASED FLEXXON LAUNCHES WORLD'S FIRST AI-EMPOWERED CYBERSECURITY SOLUTION – X-PHY® CYBER SECURE SSD

- Revolutionising the cybersecurity landscape, the X-PHY® features artificial intelligence and machine learning technologies capable of identifying and guarding against both known and unknown threats.
- With data protection anchored at the hardware level, the X-PHY® serves as the last line of defence by complementing software-based defences to deliver a holistic cybersecurity solution.
- Equipped with the ability to guard against both remote and physical attacks, the X-PHY® offers users an all-encompassing range of data protection.



The X-PHY® was officially launched today in Singapore and attended by Minister of Foreign Affairs and Minister-in-Charge of the Smart Nation Initiative, Dr Vivian Balakrishnan.¹

Singapore, 19 April 2021 – Flexxon Pte Ltd (“**Flexxon**” of the “**Company**”), a Singapore-based leading industrial NAND flash storage solutions provider, officially announces the launch of its ground-breaking X-PHY® Cyber Secure Solid-State Drive (“**SSD**”). The X-PHY® is the world’s first artificial intelligence (“**AI**”) embedded data security solution designed to deliver real-time protection against cyber threats.

Flexxon participated in Cyber Security Agency of Singapore’s (“**CSA**”) 2018 Cybersecurity Industry Call for Innovation programme and received funding from CSA’s Cybersecurity Co-Innovation and Development Fund² (“**CCDF**”) to develop its X-PHY® Cyber Secure SSD.

¹ Please credit all images in this release to Flexxon Pte Ltd.

² The CCDF aims to catalyse the development of innovative cybersecurity solutions by the industry to meet national cybersecurity and strategic needs, with the potential for commercial application.

A market leading innovation, the X-PHY® is an intelligent, predictive and self-learning cybersecurity solution that serves as a reliable last line of defence against known and unknown threats³. With AI and machine learning technologies embedded at the firmware-level, the X-PHY® delivers holistic real-time defence by working with silicon-level² defenses to guard against the ever-growing cybersecurity risks worldwide.

Ms Camellia Chan, Founder and CEO of Flexxon said, *“Cybercrimes have kept pace as technology evolved over the years, posing a universal threat to both individuals and organisations. As the Covid-19 pandemic accelerated the digital transformation of most businesses and government operations, the vulnerability of our data has become even more evident. Technology is an inevitable part of modern living, with large volumes of data stored in local, cloud-based and third-party systems. Our personal and enterprise data are some of our most critical resources, allowing individuals and organisations to make better decisions, formulate evidence-based strategies, or simply experience greater convenience in their daily lives. With innovations like the X-PHY®, we will be better equipped to leverage on the benefits of technology while safeguarding ourselves against rising cyber threats.*

Flexxon remains firmly rooted in its core principle of developing innovative and highly reliable memory storage products to that address the needs of tomorrow. Serving as a robust solution to both software and hardware-based threats, the X-PHY® offers individuals and organisations a greater peace of mind as they navigate the digital space.”

After the demonstration, **Dr Vivian Balakrishnan, Minister for Foreign Affairs and Minister-in-Charge of the Smart Nation Initiative** said, *“Today, as we become more dependent on IT systems, the cost of this dependence is security. The technology available to hackers has evolved tremendously, and today if you are still dependent on signature-based detection like your standard anti-virus software, you’re almost not protected at all.*

I would like to commend Flexxon for their innovation, which I see as a breakthrough that embeds artificial intelligence into the firmware level of the SSD, thereby helping to increase security and safety for end-users. We encourage companies like Flexxon to take part in the national ecosystem to enhance our local research and development efforts in AI, make use of the funding and support provided by the government, and find real-life applications for your innovations.”

Cybercrimes grow in sophistication and volume

In today’s hyperconnected world, cyber threats are growing at an exponential rate and in increasing sophistication. The cost of cybercrimes is projected to exceed US\$10.5 trillion⁴ in 2025, a marked increase from the recorded figure of US\$3 trillion a decade ago. As cybercriminals evolve in their methods, hardware security issues are also becoming increasingly common, with 63%⁵ of organisations reporting that they have experienced a data breach due to hardware vulnerabilities.

Beyond the increasing complexity of cyber risks, gaps in cybersecurity systems have also exposed loopholes for cyber criminals to bypass a system’s software defences. This allows malicious threats to embed themselves deep within the firmware - where it eludes discovery and compromises the security of the data stored. In fact, many users are not even aware of these

³ Software-based cybersecurity applications traditionally defend against known viruses and threats, necessitating constant updates and leaving users vulnerable to new threats.

² This refers to securing the system at the hardware level, as opposed to the more widely used software-based cybersecurity system.

⁴ Cybercrime To Cost The World \$10.5 Trillion Annually By 2025. Retrieved from: <https://www.prnewswire.com/news-releases/cybercrime-to-cost-the-world-10-5-trillion-annually-by-2025--301172786.html>

⁵ BIOS Security – The Next Frontier for Endpoint Protection. Retrieved from: <https://www.delltechnologies.com/en-us/endpoint-security/index.htm#overlay=/en-us/collaterals/unauth/analyst-reports/solutions/dell-bios-security-the-next-frontier-for-endpoint-protection.pdf>

breaches for months⁶. The reality is that as cybercrime grows, sensitive and critical data are put at increasing risk, exposing users to severe financial and reputational damage.

Building a comprehensive cybersecurity ecosystem



Dr Balakrishnan puts the XPHY Site Secure™ feature to the test, simulating a physical incursion on a user's device.

Traditional software-based cybersecurity defences require consistent updates to populate a ledger of known cyber risks, leaving the device vulnerable to new and unknown threats. Given the sheer speed, volume and sophistication of today's cyber criminals, new or unaccounted threats can bypass these defences and bury deep within the firmware. This is especially concerning as intrusions within the firmware are the highly precarious, often forcing individuals and organisations to replace their devices completely.

Addressing these gaps, the X-PHY® delivers threat detection and resolution right at the NAND device storage level. The X-PHY® ensures holistic protection by augmenting existing software-based capabilities through its built-in AI capabilities that operate to detect and deal with anomalies.

In addition, the X-PHY® is positioned at the core of its device, in closest proximity to a users' data thereby rendering the fastest response time to defend against security breaches before they occur.

Redefining data protection – a dynamic cybersecurity solution

To uphold the highest level of dynamic cybersecurity protection, the X-PHY® boasts five unique and innovative security features – the *XPHY FACTOR ENCRYPTION™*, *XPHY STREAM PROTECTION™*, *XPHY SITE SECURE™*, *XPHY FORENSIC™* and the *XPHY GUARD™*. Built upon an advanced AI Co-Processor Quantum Engine⁷, the X-PHY® fortifies the data pool of users through this comprehensive array of features while maintaining the highest levels of performance.

⁶ "2018 Verizon Data Breach Investigations Report". Retrieved from: https://www.researchgate.net/publication/324455350_2018_Verizon_Data_Breach_Investigations_Report

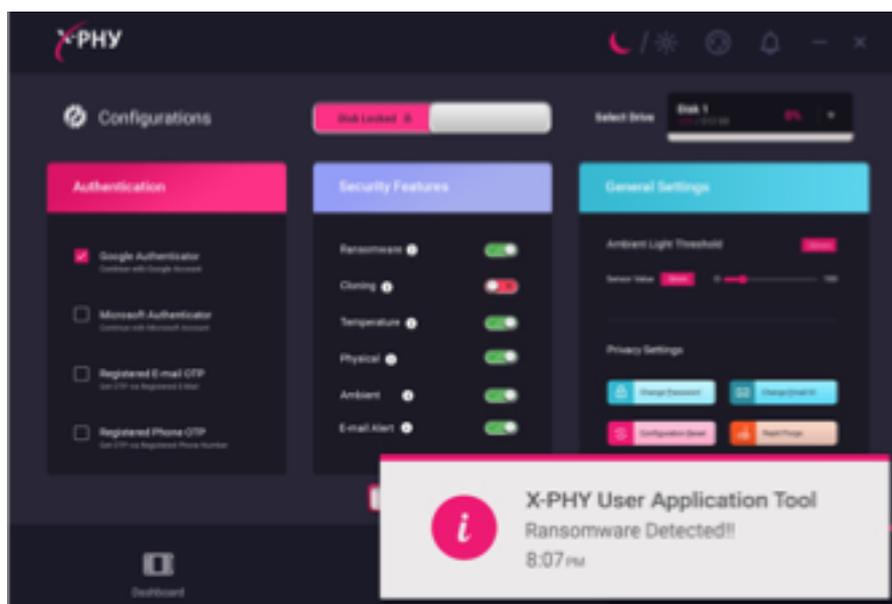
⁷ The AI Co-Processor Quantum Engine allows the X-PHY® to monitor cyber threats in real-time and defend against any potential cyberattacks.



The X-PHY®'s five unique functionalities provide a comprehensive solution to a range of cybersecurity concerns.

The X-PHY® pre-emptively safeguards the data of users through continuous security checks to detect any data breach attempts. The X-PHY®'s AI capabilities detect anomalies in data access patterns to comprehensively guard against malicious threats that may be unrecognised by software-based defences.

In the event that an intrusion has been identified, the X-PHY® shuts down any attempts of data hacking and secures the stored data immediately. By identifying new and unknown threats in real-time, the X-PHY® serves as a dynamic solution that ensures complete security from the ever-changing cyber risks – including viruses, hardware attacks, malware, ransomware and power glitches.



The X-PHY® alerts a user to a ransomware incursion.

Offering comprehensive protection beyond cyber-based attacks, the X-PHY® also guards against physical data theft⁸ through the *XPHY SITE SECURE™* function. The X-PHY® is able to register any physical anomalies and variances such as suspicious temperature fluctuations and unusual movements that occur direct to the device. In the event of such an incursion, the X-PHY® will alert the user via email and lock the device in question to prevent any physical tampering. The user will then be able to unlock the device via a dynamic authentication⁹ process.

The *XPHY FACTOR ENCRYPTION™* function is designed for specific industries where the incorruptibility of data is paramount, such as the military and healthcare sectors. To achieve this, the X-PHY® utilises digital signature verification to protect against firmware attacks and dynamic authentication to ensure the safety and security of the user's data.

Enabling greater security for the future

As the industry leader in NAND Flash Storage solutions and products, Flexxon continues to push ahead in the development of market-leading products that serve the evolving needs of today's highly digitised society.

On the road ahead, the Company will be developing its own line of hardware cybersecurity devices, constructing a complete operating ecosystem with the aim of delivering a future-ready, all-in-one cybersecurity solution. This will be achieved through the integration of the X-PHY® into the core of the device, granting enhanced performance and security across the entire spectrum of aspects from IoT devices to mobile applications, network transmission, to core data storage.

Positioned at forefront of innovation, Flexxon remains dedicated to the constant cycle of research and development to deliver robust solutions for individuals and organisations around the world.

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⁸ In 2017, nearly 1 in 5 data security incidents involved device theft or loss. Retrieved from: <https://www.computersciencedegreehub.com/data-theft/>

⁹ Dynamic authentication is a smart security protocol which commonly uses cryptography to create a per-session authenticator. It changes with each authentication session between the applicant and verifier.

About Flexxon Pte Ltd

Founded in 2007, Flexxon Pte Ltd is a leading industrial NAND flash storage solutions provider that is headquartered in Singapore. The company delivers a range of versatile advanced memory storage solutions to serve a wide spectrum of industries with a key focus on Cybersecurity, Industrial, Medical, and Automotive (CIMA) applications. Flexxon remains committed to innovating market leading technologies that ensures utmost data confidentiality and integrity. The company has worked with more than a hundred clients across the world, including multinational corporations such as HP Enterprise, Xerox and Medtronic, to deliver high performance and reliability products that serve as a custodian to their critical data.

With a vision to revolutionise technologies for good, Flexxon remains at the forefront of innovation and is dedicated to delivering robust data security solutions to individuals and organisations around the world.