brainchip

ASX Announcement

BrainChip Introduces Second-Generation Akida Platform

- Drives extremely efficient and intelligent edge devices for Artificial Intelligence of Things (AIoT) solutions
- New generation of Akida allows designers and developers to incorporate features that were not possible before
- Adds capabilities that are critically needed in industrial, automotive, digital health, smart home and smart city applications

Sydney – 06 March 2023: BrainChip Holdings Ltd (ASX: BRN, OTCQX: BRCHF, ADR: BCHPY), the world's first commercial producer of ultra-low power, fully digital, neuromorphic AI IP, today announced the launch of the second generation of its Akida™ platform that drives extremely efficient and intelligent edge devices for the Artificial Intelligence of Things (AIoT) solutions and services market that is forecast to be worth US$1T+ by 2030 according to an industry report published by Fortune Business Insights.

Sean Hehir, BrainChip CEO said, "Our customers wanted us to enable expanded predictive intelligence, target tracking, object detection, scene segmentation, and advanced vision capabilities. This new generation of Akida allows designers and developers to do things that were not possible before on an Edge device. By inferring and learning from raw sensor data, we take a substantial step toward a cloudless Edge AI experience. With this launch, we have significantly extended our competitive advantage in neuromorphic AI."

This hyper-efficient, yet powerful neural processing system, architected for embedded Edge AI applications, now adds efficient 8-bit processing to go with advanced capabilities such as time domain convolutions and vision transformer acceleration, for an unprecedented level of performance in sub-watt devices, taking them from perception towards cognition.

The second-generation of Akida now includes Temporal Event Based Neural Nets (TENN) spatial-temporal convolutions that supercharge the processing of raw time-continuous streaming data, such as video analytics, target tracking, audio classification, analysis of health monitoring data such as heart rate and respiratory rate for vital signs prediction,

and time series analytics used in forecasting, and predictive production line maintenance. These capabilities are critically needed in industrial, automotive, digital health, smart home and smart city applications. The TENNs allow for radically simpler implementations by consuming raw data directly from sensors - drastically reducing model size and operations performed, while maintaining very high accuracy. This can shrink design cycles and dramatically lower the cost of development.

Mr Hehir added, "The development of the second generation of Akida was strongly influenced by our customers' feedback and driven by our extensive market engagement. We have recently expanded our sales organisation to become truly global and we are focused on executing more IP licence agreements and generating revenue growth over coming years.

Another addition to the second generation of Akida is Vision Transformers (ViT) acceleration, a leading-edge neural network that has been shown to perform extremely well on various computer vision tasks, such as image classification, object detection, and semantic segmentation.

The Akida IP platform has a unique ability to learn on the device for continuous improvement and data-less customization that improves security and privacy. This, combined with the efficiency and performance available, enable very differentiated solutions that until now have not been possible. These include secure, small battery powered devices like hearing aids and wearable electronic devices such as watches, medical devices for monitoring vital signs, and consume only microwatts of power. This can scale up to HD-resolution vision solutions delivered through high-value, battery-operated or fan-less devices enabling a wide variety of applications from surveillance systems to factory management and augmented reality to scale effectively.

Akida's software and tooling further simplifies the development and deployment of solutions and services with these features:

- An efficient runtime engine that autonomously manages model accelerations completely transparent to the developer
- MetaTF™ software that developers can use with their preferred framework, like TensorFlow/Keras, or development platform, like Edge Impulse, to easily develop, tune, and deploy AI solutions.
- Supports all types of Convolutional Neural Networks (CNN), Deep Learning Networks (DNN), Vision Transformer Networks (ViT) as well as Spiking Neural Networks (SNNs), future-proofing designs as the models get more advanced.

Akida comes with a Models Zoo and a burgeoning ecosystem of software, tools, and model vendors, as well as IP, SoC, foundry and system integrator partners.

General availability will follow in Q3' 2023. A formal platform launch press release will take place on 7 March at 1:00am AEDT, 6 March at 6:00am US PST.

This announcement is authorised for release by the BRN Board of Directors

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About BrainChip Holdings Ltd (ASX: BRN, OTCQX: BRCHF, ADR: BCHPY)

BrainChip is the worldwide leader in edge AI on-chip processing and learning. The company's first-to-market, fully digital, event-based AI processor, Akida™, uses neuromorphic principles to mimic the human brain, analysing only essential sensor inputs at the point of acquisition, processing data with unparalleled efficiency, precision, and economy of energy. Akida uniquely enables edge learning local to the chip, independent of the cloud, dramatically reducing latency while improving privacy and data security. Akida Neural processor IP, which can be integrated into SoCs on any process technology, has shown substantial benefits on today's workloads and networks, and offers a platform for developers to create, tune and run their models using standard AI workflows like TensorFlow/Keras. In enabling effective edge compute to be universally deployable across real world applications such as connected cars, consumer electronics, and industrial IoT, BrainChip is proving that on-chip AI, close to the sensor, is the future, for its customers' products, as well as the planet. Explore the benefits of Essential AI at www.brainchip.com.

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