



## ASX Announcement

### BrainChip and Socionext Sign a Definitive Agreement to Develop the Akida™ Neuromorphic System-on-Chip

#### Company Secures Funding for Product Development

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- Agreement with Socionext, a world-class developer of complex ASICs
  - Foundry partner of TSMC, a world leading foundry for wafer supply
  - Capital raise secured, to support initial product development
  - Significant interest in BrainChip's ground breaking SNN Technology
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Sydney, Australia – 26 June 2019: BrainChip Holdings Ltd (ASX: BRN), the leading AI Edge company, today announced the signing of a definitive agreement with Socionext America Inc (SNA) for product development and manufacturing of its Akida Neuromorphic System-on-Chip (NSoC).

This agreement marks a major milestone for bringing the Akida NSoC to market.



Socionext Inc. (SNI), headquartered in Shin-Yokohama, Japan, is the combination of the former Fujitsu and Panasonic System-on-Chip (SoC) businesses. According to IHS, Socionext is the world's second largest ASIC design and development house. SNA, the American division of SNI, is headquartered in Santa

Clara, California.

This joint program pairs Socionext's wide variety of engineering disciplines and decades of ASIC design experience with BrainChip's proven AI engineering teams in Aliso Viejo, California and Toulouse, France.

Akida is a complete edge network AI SoC, which includes on-chip training, inference and continuous unsupervised learning. As the first complete neuromorphic neural network SoC to address AI Edge applications, the device supports both traditional Convolutional Neural Networks or event-based Spiking Neural Networks.

Recent progress on the development of the Akida solution includes:

- In July 2018, BrainChip introduced the Akida Development Environment which fully simulates the Akida SoC and provides performance information for accuracy, speed, latency and power for customer evaluation and implementation.
- In September 2018, the Company introduced the Akida Architecture after filing a comprehensive provisional patent covering the device inventions and methods.



- In May 2019, the Company announced the availability of licensing the Akida Neural Processing Core (NPC) intellectual property (IP) for integration by semiconductor and system companies. This allows companies to create solutions which benefit from lower power, higher speed and similar accuracy of existing complex CNNs that use a host processor for training and inference with a secondary device for computational acceleration.
- In June 2019, the Company filed a further provisional patent covering additional inventions and methods.
- In June 2019, the Company introduced a CNN-to-SNN converter that companies can use to convert and reduce power from existing CNN networks to event-based SNN networks.

Socionext will provide turn-key ASIC services to BrainChip for the Akida product, including intellectual property (IP) blocks for the external interfaces, the CPU Complex for internal control and data pre-processing, place and route of the integrated circuit, IP verification, final logic design, as well as managing wafer fabrication, assembly and test operations. Wafers will be provided by Taiwan Semiconductor Manufacturing Company Ltd (TSMC), a world leader in semiconductor technology and wafer fabrication on its competitive and cost effective 28nm CMOS logic process.

*“We are excited to join BrainChip in the design, development and introduction of Akida”* said Noriaki Kubo, Corporate Executive Vice President of Socionext. *“Bringing artificial intelligence to edge applications is a major industry development and a strategic application segment for Socionext. Socionext provides suppliers such as BrainChip with a large engineering solutions platform, ranging from integrated circuit design through final test and assembly, to bring high quality products to market efficiently.”*

*“We are extremely pleased to work with Socionext, one of the world’s leading SoC development and manufacturing teams”* said Louis DiNardo, CEO of BrainChip. *“With the firm backing by such a preeminent partner, we are confident we will be supplying the world’s first complete AI Edge network solution.”*

### **Capital Raise Completed**

Additionally, BrainChip has entered into a financing agreement with CST Capital Pty Ltd ACN 628 583 700 as trustee of the CST Investments Fund (CST Capital) for US\$2.565 million. This funding will provide the necessary capital for the initial development of the Akida device.

Under the terms of the financing agreement, CST Capital will provide US\$2.565 million to BrainChip for the purchase of convertible notes. The convertible notes have an effective 10% interest rate paid upfront as a discounted subscription to the face value of the notes, being US\$2.85 million, a 12-month maturity with up to three 6-month extensions at the Company’s



election for an extension fee equal to 3% of the face value of the convertible notes outstanding at that time. The conversion price is equal to 92% of the average of a VWAP formula prior to a conversion notice. The terms of the financing agreement also require BrainChip to issue to CST Capital 30,000,000 ordinary shares for no consideration as 'collateral shares' (which can be used for the conversion of the notes or may be bought back by the Company for nominal consideration upon maturity), 1,561,279 ordinary shares in payment of the drawdown fee for the financing (at an effective price of \$0.079 per share) and 21,868,976 options (with a three year term, and a strike price of \$0.117) on completion of the purchase of the convertible notes.

Additional information in relation to the financing agreement, the convertible notes and other securities to be issued to CST Capital, including that required by ASX Listing Rule 3.10, may be found in the 'Cleansing Notice' which was released to the ASX today.

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#### About BrainChip Holdings Ltd (ASX: BRN)

BrainChip Holdings Ltd is a leading provider of low power, high performance edge AI technology using neuromorphic circuits, a type of artificial intelligence that is inspired by the biology of the human neuron. The Company's revolutionary and proprietary new event-based spiking neural network technology can learn autonomously or execute a pre-trained DNN entirely within the boundaries of the chip. The proprietary technology is fast, completely digital and consumes very low power. The Company provides hardware focused solutions that address high-performance requirements in sensory processing, gaming, financial technology, cybersecurity, ADAS, autonomous vehicles, and other advanced vision systems. [www.brainchipinc.com](http://www.brainchipinc.com)

#### **Company Contact:**

Roger Levinson

[rlevinson@brainchipinc.com](mailto:rlevinson@brainchipinc.com)