



## Momentum keeps building

BrainChip's (ASX:BRN, OTCQX:BRCHF, BCHPY) share price has been on a wild ride since the \$0.03 low of the Corona Crash almost two years ago. Since then, it has reached a high of \$2.34 on the back of very solid news around the commercial roll out of Akida. Specifically, the four-year agreement with MegaChips, announced in November 2021, and the news that Mercedes has used Akida in one of its recent concept cars, has driven the shares to that \$2.34 peak last month.

Since then, the share price has retraced back to around \$1.50, which is the valuation we attributed to BRN in our [August 2021 report Welcome To The Revolution](#). The question now is what it will take to drive BRN's share to higher levels in a more sustainable manner.

### New share price catalysts

Well, simply put, we believe it will require two things. Firstly, we believe MegaChips will need to test and qualify its new products (that incorporate Akida technology) for commercial use, because that will be the moment that royalty revenues to BRN will start to flow. This may take a little while yet, so secondly, and in the much nearer term, we believe BRN announcing additional licencing deals with other prospects/customers, will likely be a key catalyst for the share price.

### New CEO to oversee commercialisation phase

To drive this further commercialisation, BRN has recently appointed tech veteran Sean Hehir to transform the company from an Edge AI technology developer to a global supplier of semiconductor IP and chips. His strong relationships with top-tier global semiconductor manufacturers should enable the company to capitalise on the many growth opportunities and steer it through the commercialisation phase.

### Valuation of A\$1.50 per share

We have [previously valued BRN at A\\$1.50 per share](#) using M&A valuations for industry peers. At the current share price of A\$0.95, BRN is capitalised at A\$1.8BN and it implies an approximate 58% upside in the share price. In order for the share price to go beyond that, we believe investors will want to see additional commercial deals, i.e. similar to the MegaChips deal. We expect that the Mercedes announcement in particular may have opened many eyes in various industries, which may provide new share price catalysts in 2022.

Share Price: A\$0.95

ASX: BRN, OTCQX:BRCHF, BCHPY

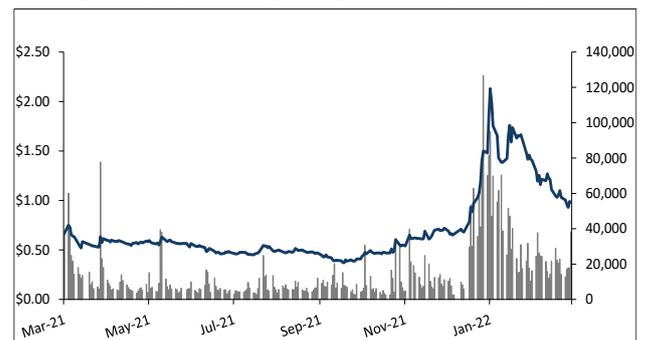
GICS Sector: Software & Services

22 March 2022

Market Cap. (A\$ m)	1,628.5
# shares outstanding (m)	1,714.2
# share fully diluted	1,816.1
Market Cap Ful. Dil. (A\$ m)	1,725.3
Free Float	99.8%
52-week high/low (A\$)	0.365-2.34
Average daily volume (x1,000)	15,189
Website	brainchipinc.com

Source: Company, Pitt Street Research

### Share price (A\$) and avg. daily volume (k, r.h.s.)



Source: Refinitiv, Pitt Street Research

Valuation metrics	
Valuation per share (A\$)	1.50

Source: Pitt Street Research

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## Partnership with MegaChips to enhance technology positioning

As announced on 22 November 2021, BrainChip has finalised a four-year, non-exclusive licensing agreement with MegaChips, a Japan-based leading player in the Application-Specific Integrated Circuit (ASIC) industry, to use BrainChip's Akida-related intellectual property (IP) to develop next-generation AI solutions.

MegaChips will leverage BrainChip's Akida technology to produce external customer's system-on-chip designs, providing solutions to the automotive, Internet of Things (IoT), cameras, gaming and industrial robotics markets. In return, BrainChip will receive:

- License fees to be received in multiple installments by the end of FY23 (December-ending), with the first payment due upon signing of the agreement.
- The company anticipates that it will recognise aggregate revenue of US\$2M in the first full year of the agreement.
- A percentage of sales as a royalty fee based on the volumes sold.
- Fees for support services.
- A license fee for end-user application related product development.

BrainChip will continue to provide proof of concept, engineering support, sales and development support as well as software support to MegaChips. Further, it has entered into a distribution agreement with MegaChips for the sale of specific Akida-technology-based products in Japan.

The combination of Akida's on-chip learning and ultra-low power Edge AI capabilities with MegaChips' ASIC solutions will enable the companies to deliver products that will ensure power efficiency and will be able to run autonomously for incremental learning without going to the cloud.

Moreover, the agreement will provide BRN access to MegaChips' global base of customers and enable it to enter and spread its footprint in new geographies. With the company in the process of commercialisation, the licensing agreement will be a stepping stone in the company's journey towards revenue growth.

## Continued access to higher funds to support R&D needs

BrainChip has agreed to a second amendment in its Put Option Agreement (POA) with LDA Capital to increase the total funds available under the agreement to A\$65m from A\$45m (under the first amendment). It has also extended the draw-down period by a further 12 months (to December 2023). As per the new amendment:

- the company raised A\$22.4m in two recent drawdowns, and
- the third draw-down period necessitates a draw-down of A\$15m by 31 December 2023.

BrainChip expects the increased funding and the extension of the draw-down period to allow the company to meet its R&D and investment expenditure to further develop the Akida technology, i.e. future product generations.

*BRN's Akida technology will be leveraged to offer system-on-chip designs. In return, the company will receive a license fee and effort-based compensation as part of the agreement*

*MegaChips deal provides BRN access to global customer base*



Per the end of 3Q21, BRN had a cash position of \$23.9m compared to \$17.7m in the previous quarter. Net cash outflow for the quarter was \$4m vs. a net outflow of \$3.1m in the prior quarter. As of 9M21, the company had raised a total of \$8.26m, of which \$5.46m came from the exercise of Long-Term Incentive Plan (LTIP) stock options, while the remaining \$2.8m came from the issue of shares to LDA Capital in accordance with the POA. The company also saw \$2.1m of cash inflows from the sale of LTIP shares over the exercise price of the underlying options. These funds will be remitted to LTIP participants in the future.

*Inflow of US investment should attract foreign interest*

## Issuance of Level 1 ADR to attract foreign interest

BRN has launched its Level 1 ADR program, with a listing on the OTCQX Best Market exchange (ticker: BCHIPY) with 1 ADR set equal to 40 ASX-listed shares of BRN. No additional shares will be issued and no additional capital raised. The move is in line with the company's strategy to attract foreign investors and provides access to the US capital markets. The strong traction for AI-based stocks, coupled with the company's strong positioning in neuromorphic processing should result in an inflow of US investment over time.

## DTC eligibility

Following a separate announcement, BRN shares are now approved for eligibility by the Depository Trust Company (DTC), making it possible to settle trades electronically in the United States among brokers and BRN's US transfer agents. This move will dramatically reduce costs associated with trading securities while improving the ease of trading and liquidity of BRN shares.

As appetising as it is for Australian companies, especially technology companies, to attract United States investors it is typically difficult for US investors to buy into Australian-listed companies due to regulatory complexities.

BRN is able to attract US investors because it has two US listings, on the OTCQX® Best Market, the ordinary shares that trade under the symbol BRCHF and the ADR's mentioned above.

## Improved processor performance and commencement of development kit production

The functionality and performance testing of the AKD1000 production chips has been completed, showing better than anticipated performance of original engineering samples. The improved performance, along with lower power consumption, is a result of some minor design changes made by BrainChip after the results of the previous testing of samples. With the improved results, the company is well-positioned to target high-growth end markets, in our view, such as industrial, consumer, mobile and automotive.

*Offering two development kits to promote adoption and acquiring new clients in high-growth end markets*

BRN is currently offering two development kits, both including the AKD1000 chip on a small form factor PCI board – an X86 Shuttle PC development kit as well as an ARM-based Raspberry Pi development kit. The company has now commenced the production of these two kits and has also started accepting orders from customers. These development kits will enable OEMs and



potential partners to conduct internal testing and act as a proof of concept for the performance of the Akida1000.

Furthermore, as part of its commercialisation strategy, the company will target broader audiences by presenting at industry events and conferences to demonstrate the commercial applications of Akida Technology. The company is also focusing on physical expansion by quadrupling its US headquarters space. Larger facilities will support infrastructure needs to accelerate commercialisation of BrainChip's IP.

## Expanded patent portfolio with nine patents

BrainChip was granted five new US patents to protect its technology and to maintain its competitive advantage. The patents were granted for the following:

- A foundational patent to protect the unique ability of the Akida technology chip to learn in real time,
- To protect a configurable neural network-based accelerator system and a method for performing functions associated with configuring neural network,
- To protect a system and a method for extracting features in an artificial neural network.
- To protect event-based classification of features in a convolutional neural network.
- To protect accessing learned functions in an intelligent targeting device.

Patents protect BRN's intellectual property (IP), which currently accounts for the majority of the company's value, BRN being at the very early stages of commercialisation. IP protection helps to ensure that other companies cannot develop similar offerings that essentially copy BRN's – freeriding without doing the hard work BRN has. It also signifies to the company's research partners and customers - both current and potential – that BRN is at the forefront of revolutionary change in its field.

The company has a total of nine patents – eight in the US and one in China – and expects to receive further patents in the coming months. It has 21 patent applications pending in the US, Europe, Canada, Japan, Korea, Australia, Brazil, Mexico and Israel.

## New CEO with vast industry expertise

BrainChip has appointed Mr. Sean Hehir as its new Chief Executive Officer (CEO). Mr. Hehir has a track record of organisational development, strategic alliances and go-to-market programs, which have helped large technology organisations, such as HP, Compaq and Fusion-io, to drive revenue growth.

He has built relationships and partnered with companies, such as Microsoft, Intel, AMD, Oracle, Cisco, SAP and Accenture. He is currently serving as a board member of the Silicon Valley Executive Network. Given his strong relationships with top-tier global Tech companies, BRN has entrusted him with the task to drive the company from a developer to a global supplier of AI technology. He is expected to drive the company's growth and commercialisation initiatives.

***Sean Hehir is a tech veteran and is expected to drive BrainChip's commercialisation and growth initiatives***



## Mercedes-Benz using Akida

At the recent Consumer Electronics Show in Las Vegas, carmaker Mercedes-Benz announced it would use BrainChip's microchip in its Vision EQXX electric vehicle. This vehicle is only at a concept stage, but is intended to travel 1000km or 620 miles on a single charge – over 50% greater than the Tesla Model S Long Range.

The further carmakers want their EV's to travel, the more energy the cars will need to be able to store. But Mercedes hopes that Akida will dramatically reduce the energy needed to run future car models. It estimates that the Vision EQXX could go 6.2 miles per kWh, 55% more efficient than Teslas.

Although it will be a few more years until we will see derivatives of this specific concept car on the roads, the announcement is significant as it signals Mercedes may use Akida in a range of future models and may open the door for other electric vehicle makers to use Akida.

## Valuation of A\$1.50 per share

We have previously valued BRN at A\$1.50 per share using M&A valuations for industry peers. At the current share price of A\$0.95, BRN is capitalised at A\$1.8BN and it implies an approximate 58% upside in the share price.

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## Key investment risks

We see five main risks related to BRN's investment thesis and traded shares:

- **Execution risk:** Any delay in Akida's commercialisation plan, i.e. moving towards commercial sales with MegaChips and securing additional commercial deals in the near to medium term, may negatively impact BRN's valuation.
- **Lower adoption rate of Akida technology:** While Akida is expected to be widely used across various end markets, slow adoption rates by customers may hamper BRN's growth.
- **Funding risk:** BRN may need to raise additional capital to support its development activities until it reaches cash flow break-even, diluting current shareholders.
- **Technology risk:** We believe BRN is well ahead of its competitors with on-chip learning and on-chip convolution, which no other company has been able to achieve. The company also owns the patents on those technologies. As with all types of technology, though, we need to mention that the rapid pace of development in the AI space may lead to BRN's technology becoming less competitive.
- **Share overhang:** LDA Capital can sell the shares it owns in BRN (other than collateral shares) in the market at any time, depending on certain daily volume restrictions, which may result in sudden and adverse share price movements.

Please refer to [www.pittstreetresearch.com](http://www.pittstreetresearch.com) for our initiating coverage report on BRN, including more elaborate risk assessments.

*Fair value of A\$1.50 per share  
reiterated*



## Appendix I – Analyst Certification

Marc Kennis, lead analyst on this report, has been covering the Semiconductor sector as an analyst since 1997.

- Marc obtained an MSc in Economics from Tilburg University, The Netherlands, in 1996 and a post-graduate degree in investment analysis in 2001.
- Since 1996, he has worked for a variety of brokers and banks in the Netherlands, including ING and Rabobank, where his main focus has been on the technology sector, including the Semiconductor sector.
- After moving to Sydney in 2014, he worked for several Sydney-based brokers before setting up TMT Analytics Pty Ltd, an issuer-sponsored equity research firm.
- In July 2016, with Stuart Roberts, Marc co-founded Pitt Street Research Pty Ltd, which provides issuer-sponsored research on ASX-listed companies across the entire market, including technology companies.

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