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# Hi, we're brainchip

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## You're about to see a brand new technology.

There's a lot to absorb, so get comfy.



Nearly everyone has a smartphone.

But what makes a smartphone smart?







## Its "brain".

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However, phones are programmed to be smart, using hardware and software.

Li-ion Polymer Battery 3.82V === 6.91Whr APN: 616-0805

.......

CPU

#### WARNING

**Authorized Service** Provider Only

Potential for fire or burning.Do not disassemble, puncture, crush, heat, or burn.





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# We have a technology that is truly smart.

And it's orders of magnitude faster than current technologies



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## It's called Spiking Neuron Adaptive Processor technology.

And it has a handy acronym: SNAP.



## We've been developing SNAP for over 10 years and its capabilities go far beyond speed improvements.



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## So how does it work?













#### AUTONOMOUS LEARNING CURVE



#### FOR NEUROMODULATOR 1

#### FOR NEUROMODULATOR 2



THIS IS WHAT CHARACTERISES THE PROCESS OF LEARNING:

## SPIKE TIMING DEPENDANT PLASTICITY (STDP)







### Orders of magnitude faster





### Orders of magnitude faster

### 1/1000<sup>th</sup> power consumption





### Orders of magnitude faster

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### Autonomous learning





# Orders of magnitude faster

### 1/1000<sup>th</sup> power consumption

### Autonomous learning

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Revolutionary Digital Hardware only design, no Software





# Orders of magnitude faster

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# Massive parallel processing



# Orders of magnitude faster

### 1/1000<sup>th</sup> power consumption

### Autonomous learning

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Revolutionary Digital Hardware only design, no Software

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# Massive parallel processing

Standalone or co-processor configurations



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## **SNAP** is true Artificial Intelligence that can learn and operate at speeds close to the human brain.





#### Software Neural Networks



### Software Neural Networks

• High latency with software overhang



### Software Neural Networks

- High latency with software overhang
- Designed for very specific tasks



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- High latency with software overhang
- Designed for very specific tasks
- Requires a huge server facility



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### SNAP

• Extremely low latency



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- Extremely low latency
- Learns from a wide variety of inputs



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- Extremely low latency
- Learns from a wide variety of inputs
- A small network of microchips



### Software Neural Networks

- High latency with software overhang
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- Extremely low latency
- Learns from a wide variety of inputs
- A small network of microchips
- Processes and stores information onboard



## **One SNAP neuron is** the equivalent to 4997 Sigmoid (Software) neurons.

Wolfgang Maass, University of Graz.





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# Our smarts are our biggest asset.

BrainChip is an IP licensing business, so our business model will focus around licensing, engineering fees and royalty streams.





#### Industry and Technology Insight

#### **Network of Partners:** Creating products never thought possible before using the **BrainChip** Development Kit (BDK)

Intelligent Chips

OEM

#### **Autonomous Learning Devices**



Maximum Cyber Security, e.g., in phones, and...



New capabilities in every digital electronic device

# Our market opportunities.

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As well as our current discussions with potential technology partners, and series of products in the pipeline, we have identified two key areas of focus. Smartphones and the Internet of Things (IoT).



# What Wikipedia Says about the Internet of things.

The network of physical objects or "things" embedded with electronics, software, sensors, and network connectivity, which enables these objects to collect and exchange data.



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## What Dave Evans (Cisco) Says about the Internet of things; Experts estimate that the IoT will consist of almost 50 billion objects by 2020.



## SNAP and the Internet of Things.



# SNAP and the Internet of Things.

SNAP technology can be embedded in IoT devices paired with various different sensors, like temperature, gas emissions, traffic cameras,CCTV and more.



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The IoT sector is forecast to be a multi billion dollar market segment.



# SNAP's future on the second For personal



## SNAP's future SNAP's future -Milestone 2 BrainChip Spiking Neural Network SNAP implemented in Hardware Demonstrates the advanced nature of the SNAP technology

Enables scalability

Delivery achieved ahead of schedule



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**Milestone 3** 

Allows for product deployment on server

Proves configurability

**Proves scalability** 

Delivery: expected Q1 2016

Engineering work on track

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# **SNAP Client / Server API**



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# **SNAP Client / Server API**

#### Beyond

BrainChip Development Kit (BDK)

BrainChip Experimenters Kit (BEK)

SNAP 64 Chip

SNN Accelerator System

A significant product pipeline to enable large scale deployment of SNAP

Delivery: Over the next 24 months



# We plan to build a broad portfolio of global patents.

We have 1 granted patent and five patents pending.



# We plan to build a broad portfolio of global patents.

Brainchip has a large number of patents in progress.

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## The brains behind Brainchip



Mick Bolto Chairman

Legal and Corporate background.



Peter van der Made Executive Director, CTO and Interim CEO

> SNAP inventor, previous Chief Scientist at IBM.



Adam Osseiran Non executive Director

Engineering background with extensive technical business development experience.

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#### Anil Mankar Chief Operating Officer

An accomplished Senior Engineer with full product development lifecycle experience.

Held senior positions at Western Digital, Connexant, MindSpeed and Rockwell.



Neil Rinaldi Non Executive Director

Corporate background with an emphasis on M&A, capital raising & business development initiatives.



### Scientific Advisory Board The team behind the team



Dr. Nicholas Spitzer Neuroscientist

**Professor** at University of California San Diego

> Ph.D Harvard University



Dr. Jeffrey Krichmar **Cognitive Scientist** 

> **Professor** at University of California Irvine

Ph.D George Mason University



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Dr. Gert Cauwenberghs Scientist

**Professor University of** California San Diego

Ph.D California Insitute of Technolgy, Pasadena



Top twenty shareholders hold greater than 75.00%

54% of structure escrowed for between 1-2 years

Directors and management hold a significant stake.

Free float = 239,700,608

\* Escrowed for between 12-24 months

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## Capital Structure

Security Type	Number of shares	Escrowed shares	Performance rights	Unlis optic
Unrestricted fully paid shares (free float)	239,700,608			
Restricted fully paid shares		431,174,644*		
Performance rights			120,000,000*	
Unlisted Options				6,250,



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## Let's recap.



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We're a team of experienced innovators with a disruptive technology and a diverse revenue model.

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## Let's recap.

We're a team of experienced innovators with a disruptive technology and a diverse revenue model. braind

This is a global opportunity, we have significant product development plans, and we'd love to have you on board.



## Pick our brains.

### Questions...

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