

# EPI Forum

Barcelona, 9–10.10.2024.



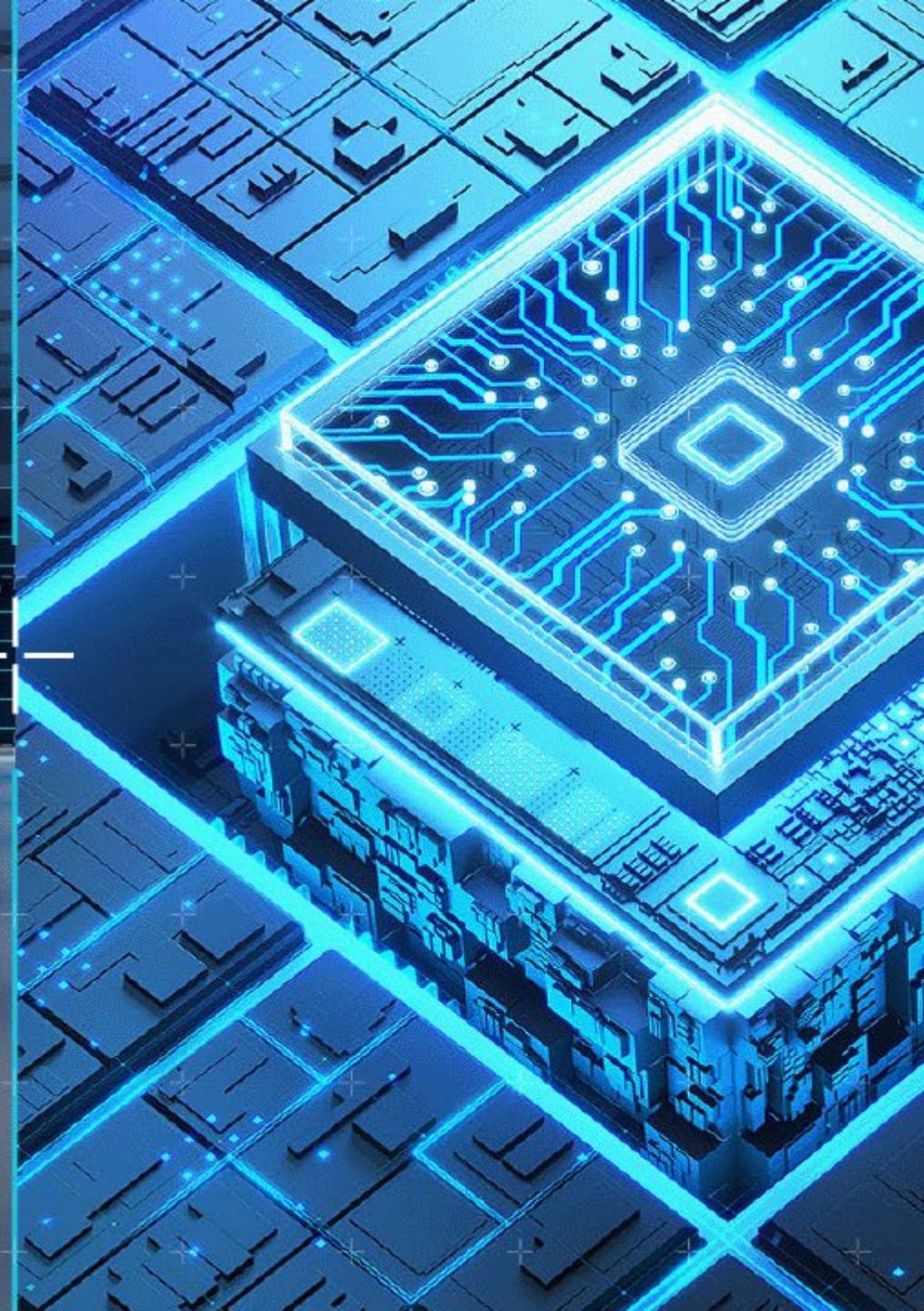




# Enabling European Innovation with Arm technology

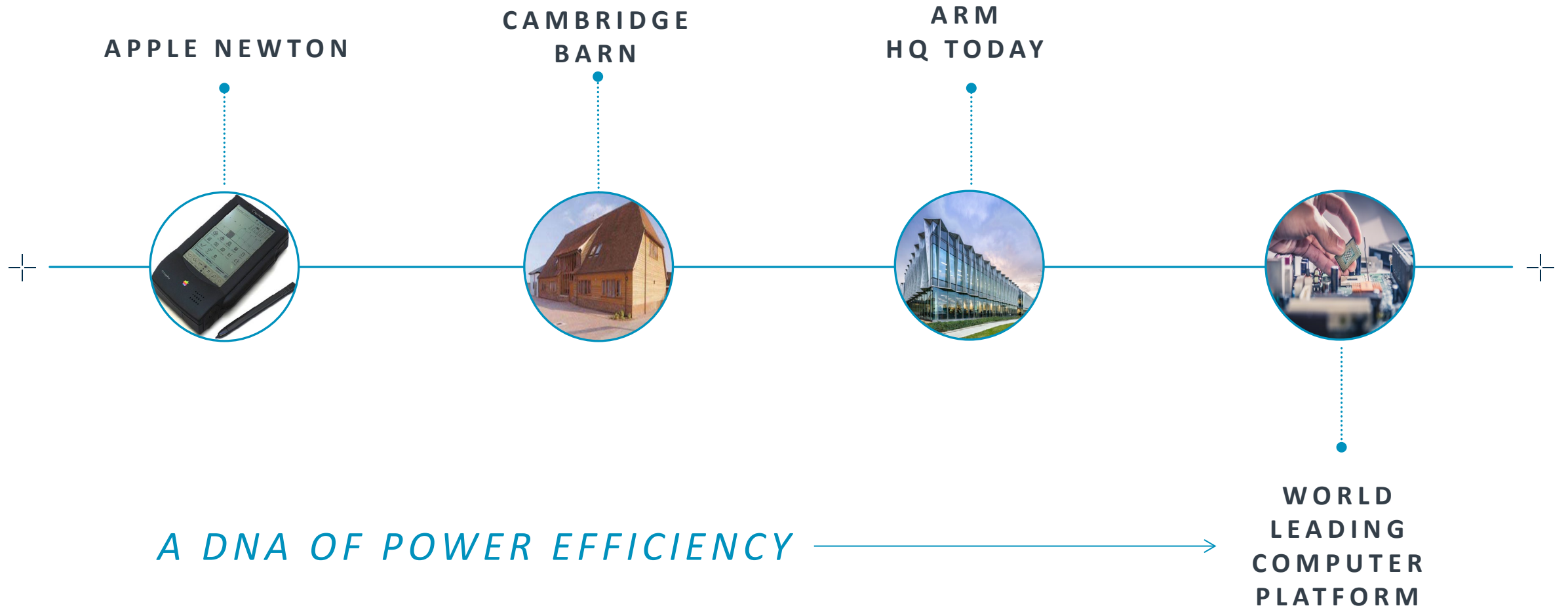
EPI Forum, Barcelona 9 september 2024

Eric Lalandie +33 607 830 907  
9<sup>th</sup> October 2024

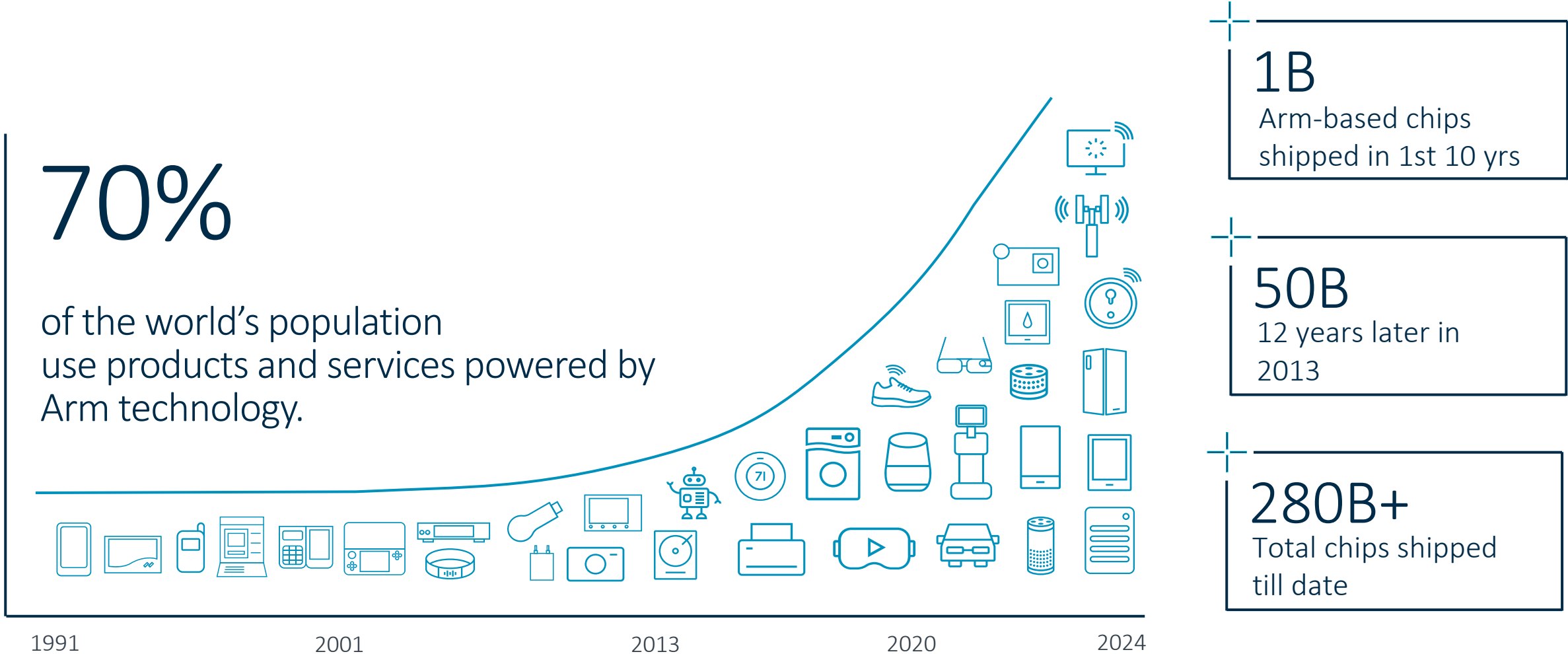




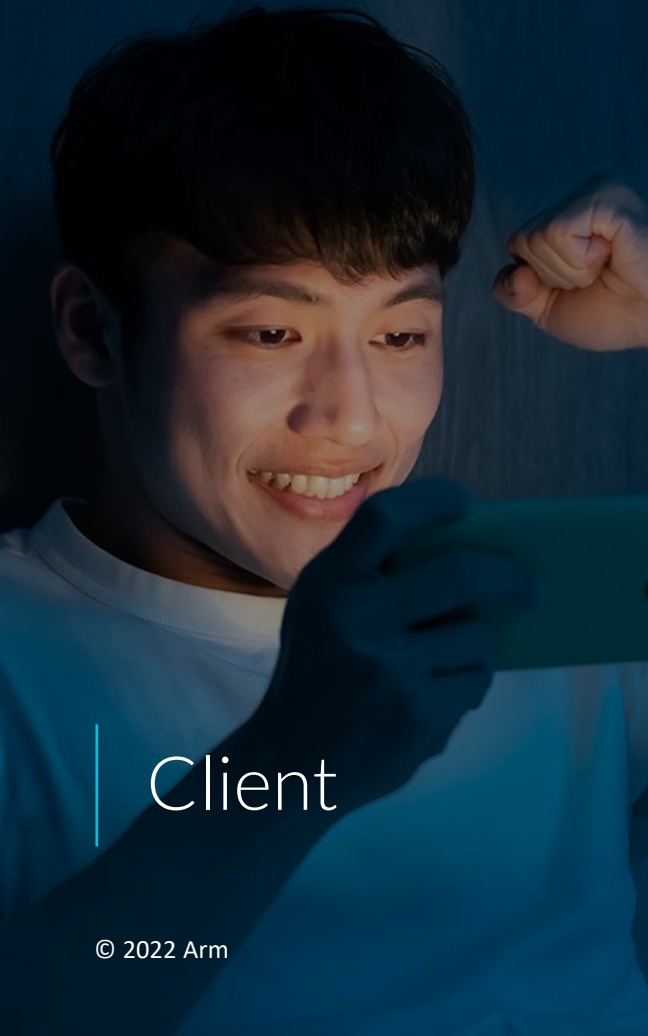
# Arm: 30+ Years of Engineering Innovation



# Arm Technology is Defining the Future of Computing



# Arm-based Compute is Everywhere



Client



Automotive



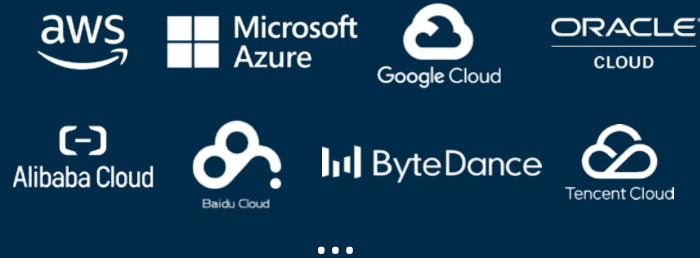
IoT



Infrastructure

# Growing Momentum for Arm in Infrastructure

## Top Hyperscalers deployed Arm SoCs



Arm Neoverse  
powers worlds  
leading  
infrastructure  
providers

## Top DPUs are built on Arm to drive networking acceleration



## 50+ Silicon Partners



## 12+ OEMs/ODMs now offer Arm based servers



## 110+ Arm SystemReady certifications







**Sophia Antipolis (FR)**  
4<sup>th</sup> largest site, 45 nationalities

**60% of employees based in Europe and UK**  
**Headquarters in Cambridge, 5 sites in the EU**



Enabling EU breakthrough initiatives  
in advance efficient high-  
performance computing

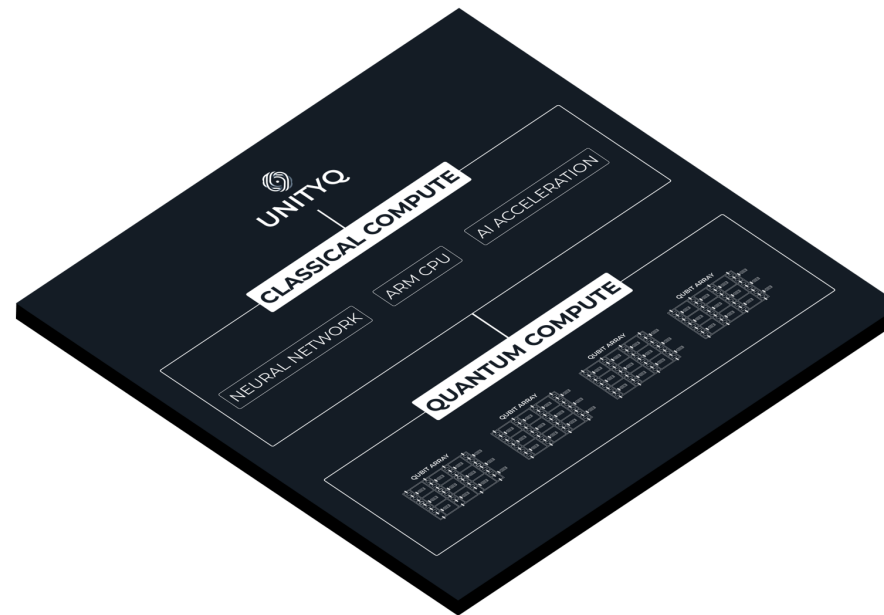


# Arm Cores Powering Equal1 Quantum System-on-a-Chip

- + « Equal1's highly innovative Quantum System-on-Chip (QSoC) processors, powered by Arm IP technology, integrate entire quantum computing systems onto a single chip, merging millions of qubits, control systems, and real-time error correction capabilities. Our QSoC utilize Arm's Cortex A55 and Ethos U65 cores »

## UnityQ - The Path to Infinite Scaling

The world's first Quantum/Classical Processor



### 5TH-GENERATION CRYO-CMOS QUANTUM SYSTEM-ON-CHIP (QSOC)

Scales to millions of qubits; thousands of logical qubits

World's first ARM core operating at 1 Kelvin


On-chip, patented AI-enabled Error Correction with custom neural network (10ns latency)

Built on standard foundry processes for cost-effective, scalable production of UnityQ

Hybrid quantum/classical processor will accelerate breakthroughs in drug discovery, materials, and AI

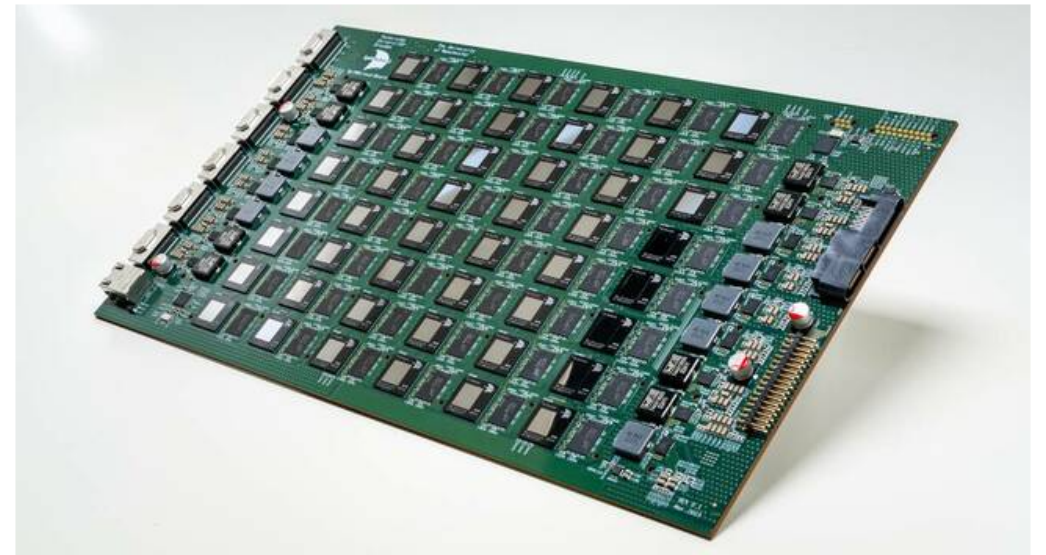
# SpiNNcloud Systems unveils Arm-based 'neuromorphic supercomputer'

- ✦ The world's first Brain-like Hybrid Supercomputer
- ✦ Arm's technologies and ecosystem are enabling disruptive approaches to the compute challenges.

 [Dan Robinson](#)

Wed 8 May 2024 // 19:30 UTC

SpiNNcloud Systems says it is making commercially available a hybrid AI high performance computer system based on an architecture pioneered by Steve Furber, one of the designers of the original Arm processor.



One of SpiNNcloud's server boards – [click to enlarge](#)

SpiNNaker2 is based on the principles of the human brain, the company says, and uses a large number of low-power processors to more efficiently process AI and other workloads.

Specifically, the server board in a system carries 48 SpiNNaker2 chips, each of which has 152 Arm-based cores plus a variety of hardware accelerators, including distributed GPU-like units, all intended to boost neuromorphic, hybrid, and mainstream AI model processing.



# SiPearl, to life the European high-performance low-power processor

- + Arm supporting the EPI since day 1
- + Most advanced compute project in Europe
- + Close collaboration required to take our Neoverse platform to silicon
- + Ecosystem growing fast

## Rhea1, our 1<sup>st</sup> generation microprocessor

### High performance per watt: Arm ISA power efficiency

- Arm cores have ~30% smaller area vs equivalent performance x86 cores

### Very high memory bandwidth

#### Built-in HBM

- Ideal performances for Generative AI

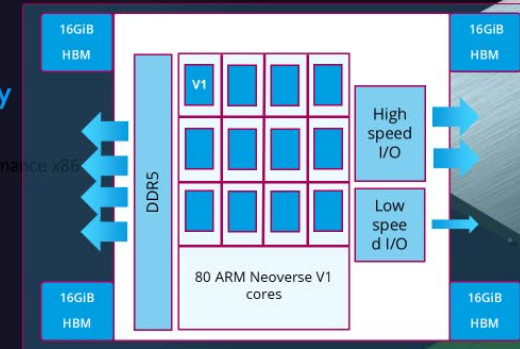
#### Unique memory architecture: High Byte/Flop

### Openness

- Arm ecosystem from IoT/edge to HPC and cloud

### Fully auditable – backdoor-free

Rhea1 will deliver extraordinary performance and efficiency with an unmatched Byte/Flop ratio.



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# Arm Software Ecosystem





+ 15+ Years  
of Investment

+ 100+ ISVs  
Commercial Support

+ 100s of OSS  
Native Build Projects

+ Docker Build  
Cloud  
Native Multi-Arch builds

+ 10k+ Companies  
Deploying Workloads

## Arm Software Ecosystem

Industry Leaders Accelerating  
Arm Solutions



...

# Arm is committed to drive / support innovation in EU

- + HQ in UK, 60% of Arm employees are located in UK/EU
- + The most advanced processors are designed in Europe
  - A major CPU design hub in France
  - Arm DNA is performance, power / system efficiency
- + Nvidia, Ampere, Sipearl... & key major CSPs are designing high end CPUs leveraging the Neoverse platform
  - Most of the hyperscalers are using Arm to reduce TCOs and get the customization/compute density they need for user's benefits
- + Inferencing is where most of the usages are/will be & it runs on arm
  - Inferencing on arm processor delivers the best token/\$ ratio
- + Vibrant Arm SW ecosystem supports on-prem/off-prem HPC & cloud requirements
- + Building advanced cloud or HPC class silicon is a complex and expensive task
  - Sipearl is well advanced on Rhea1 with leading features set alike HBM & vectorization support
  - Equal1, SpinnCloud driving innovation in EU with Arm support



# On Arm Lockups



# EPI FORUM



**EuroHPC**  
Joint Undertaking

PLATINUM SPONSORS



GOLD SPONSORS





arm

Thank You

Danke

Gracias

Grazie

谢谢

ありがとう

Asante

Merci

감사합니다

धन्यवाद

Kiitos

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