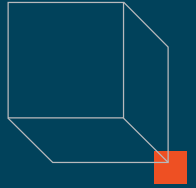


ARCHER

Investor Presentation



April
2024
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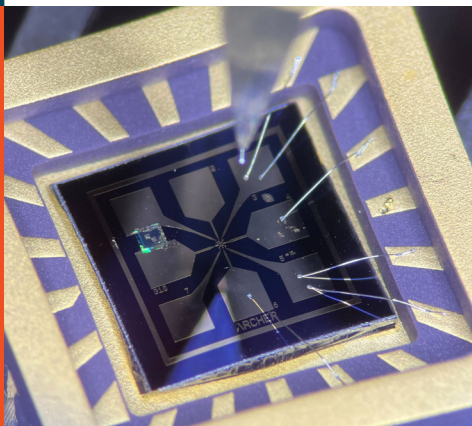




Archer Materials is developing the next generation of advanced semiconductor devices – technologies that are a result of the creativity and pioneering scientific discoveries of our team.

Quantum Technology

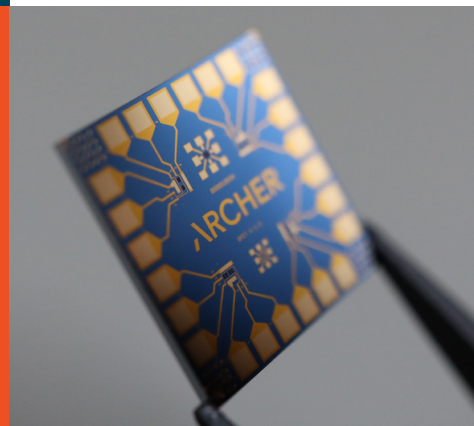
^{12}CQ Chip



Quantum chip device with the potential to integrate on-board modern electronics.

Bioelectronics

Biochip



Lab-on-a-chip device integrating graphene biosensors with the potential to parallelise the detection of biologically relevant targets.



Archer has the foundations in place to advance its semiconductor development.



Access to \$1B+ of deep-tech infrastructure and facilities.



Efficient use of funds with A\$21.5M cash and no debt as of 31 Dec 2023.



Patents granted in the US, China, South Korea, Japan, Hong Kong, Australia, and Europe.



Deep technology development backed by world-class R&D.



Partnered with tier-one foundries, tech institutes, international organisations and companies.



Attracting and retaining pioneering innovators and technologists.



Archer utilises its global partnerships to develop its technologies for potential deployment and use across multiple industries.

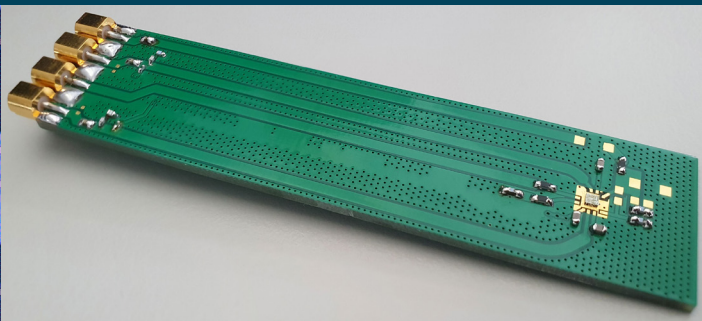
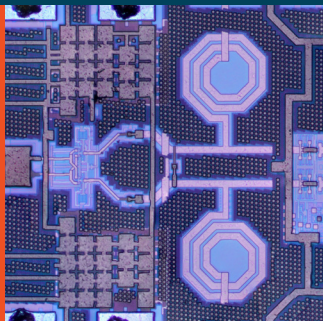
Archer's ^{12}CQ chip development involves quantum material integration with modern devices made in industrial foundries. HEMT and CMOS integrated circuit technology devices have been used to detect quantum states in the ^{12}CQ material at room-temperature.

Advanced designs of Archer's biochip graphene field effect transistor sensor technology have undergone semiconductor processing in a commercial foundry. Initial whole wafer and MPW testing runs have been completed with foundry partners in Europe.





Archer continues to progress towards making quantum technology devices.



Q2
FY23



Q3
FY23



Q4
FY23



Q1
FY24



Q2
FY24



Q3
FY24



Quantum states in Archer's 12CQ material detected using CMOS technology and supercomputers validate quantum material uniqueness.

Engagement with tier-one semiconductor companies, including TSMC, to secure future manufacturing capabilities.

Archer engineers its quantum material giving rise to unique functionality.

Design and build of microwave circuitry for readout devices, validated using electromagnetic simulation software.

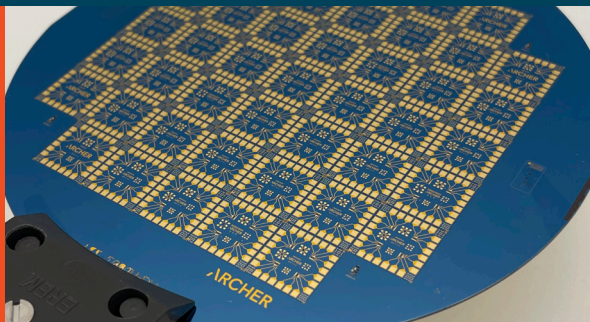
Progress in readout circuit design and quantum electronic devices in development designed for foundry runs in the US and Europe.

Archer and research partner EPFL develop a pulsed electron spin resonance microsystem (above) using BiCMOS technology to advance the 12CQ chip project.

Substantial progress in innovation at the forefront of international quantum development.



Archer's Biochip technology uses graphene transistors as miniaturised and ultrasensitive sensors aimed at detecting and analysing disease.



Q2
FY23



Q3
FY23



Q4
FY23



Q1
FY24



Q2
FY24



Q3
FY24



An operational, early stage, end-to-end prototype system platform built, and Archer seeks patent protection internationally.

Electronic control of the sensitivity of incorporated gFET devices achieved, critical for the selective detection of target molecules.

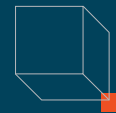
gFET design transfer to a foundry partner after Archer develops an optical lithography-compatible chip layout, designed for whole-wafer scale production.

Commercial foundry partner in the Netherlands validates Archer's advanced biochip gFET design with whole four-inch wafer fabrication processes.

Multiplexing for liquid samples achieved and first joint chip fabrication completed with a commercial foundry in Germany.

Significant miniaturisation of the biochip gFET chip design achieved for foundry fabrication in the Netherlands.

Continued innovation towards integrating more functionality on the biochip, and optimising device manufacture in commercial foundries.



Archer is primed to join the semiconductor supply chain.

The future of tech will look fundamentally different





Archer continues to de-risk its technology in CY24 with a strong cash balance to fund continued technological and commercial developments.



In CY24, Archer's growth involves:

Technology

Progressing world-first technology development, including ¹²CQ quantum chip and graphene-based lab-on-a-chip biochip.



Partnerships

Establishing and strengthening strategic commercial partnerships, including securing future semiconductor manufacturing capabilities advancing technology development.



Innovation

Utilising world-class technology development infrastructure and facilities, R&D, people, and IP.



Patents

Protecting intellectual property (e.g., patents and international patent applications) with global competitive advantages to underpin innovative technology.



Talent

Hiring new staff to expedite developing and working towards commercialising the Company's technology.





Archer's technology innovation aims to solve long-standing human problems that can't be solved using existing technology.



The future of tech.

Archer's complementary quantum devices offer the potential to overcome significant limitations in traditional digital technologies.

Tier-one supply-chain links.

Archer's partnerships are strong with clear goals. We work with multinationals, startups, and leading R&D labs around the world.

Talented team to rival any.

Archer is developing advanced semiconductor devices based on the breakthrough scientific discoveries of our staff.

Global competitive advantage worth protecting.

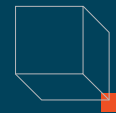
Archer is the only ASX listed company and one of a few players in the semiconductor industry with patents protecting qubit processor technology.

The Company has a growing IP portfolio of granted and pending patents for potentially commercialising step-change advances in its R&D Programs.

Activities with significant impact.

Archer has a solid track record delivering on ambitious goals, with a strong pipeline of 'news flow' expected over the next year.

Archer is part the wider global ecosystem of the semiconductor industry



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ASX Code: **AXE**

The Board of
Archer authorised
this announcement
to be given to ASX.

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