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ASX Announcement (ASX: **AXE**) 22 September 2021

US patent granted for ^{12}CQ quantum computing chip

Highlights

- Archer reaches its most significant early-stage commercialisation milestone with the granting of a US patent for the ^{12}CQ quantum computing chip.
- The patent grant protects Archer's ^{12}CQ chip technology IP and allows the Company to explore opportunities to work with quantum computing partners in the US.
- US companies are considered to be the dominant force driving innovation in the semiconductor and computing industries.
- Archer is the only ASX listed company and one of a few players in the world with a patent portfolio protecting a qubit processor chip technology in the semiconductor industry[†].

Archer Materials Limited ("Archer", the "Company", "ASX: **AXE**") is pleased to announce the granting of a patent in the United States of America ("US Patent") associated with Archer's ^{12}CQ quantum computing chip technology.

The US Patent (Patent No. 11126925)[‡] represents a major early-stage commercialisation goal in Archer's development of the ^{12}CQ chip. The US Patent provides Archer protection of the related intellectual property rights in the US.

The Company considers the US as a critical strategic jurisdiction to protect and potentially commercialise its IP. Patent protection in the US is required for any future commercialisation operations in the US, and also provides Archer with access to the world's largest economy[§] to exploit IP rights related to the ^{12}CQ chip.

The granting of the US Patent is a significant step in the Company's efforts to access global markets and participate in the US technology economy. The US leads the world in digital legal frameworks and incentivises long-term investments in research, innovation, and invention.

The US has announced that quantum technology and the semiconductor industry are key priorities of investment in the US for its global technology leadership plans. The US recently entered into a trilateral security partnership with Australia and the UK called 'AUKUS'[**], with a focus that includes quantum technologies. The US has also passed into law the National Quantum Initiatives Act[††], and introduced the Innovation and Competition Act ("ICA")[‡‡].

[†] IBM Quantum Network: https://www.ibm.com/quantum-computing/network/members/
[‡] https://portal.uspto.gov/pair/PublicPair
[§] https://www.weforum.org/reports/the-global-competitiveness-report-2020
[**] https://www.pm.gov.au/media/joint-leaders-statement-aukus
[††] https://www.congress.gov/bill/115th-congress/house-bill/6227
[‡‡] https://www.congress.gov/bill/117th-congress/senate-bill/1260

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The ICA is a US$250 billion investment in various science and technology fields. The ICA, if passed into law, will channel US$52 billion to strengthen the US's domestic semiconductor industry and US$120 billion for investment in advanced technologies, including quantum computing. Archer will need US patent protection if the Company is to participate in the US semiconductor and quantum technology industries.

Commenting on the grant of the US patent, Archer CEO Dr Mohammad Choucair said: "Archer's ^{12}CQ quantum computing chip IP is now protected in the US. The Company has achieved a major early-stage commercialisation milestone with the granting of the US Patent.

"The ^{12}CQ chip Archer is developing is an entirely new technology in the semiconductor industry that could potentially allow for the future operation of practical quantum computing devices.

"Most of the investments, R&D, innovation, and commercialisation in quantum computing takes place in, or originates from, the US. At the core of this thriving innovation ecosystem are patents and the accompanying IP rights.

"Archer is one of few companies with a patent portfolio protecting quantum computing chip technology and one with a unique global competitive advantage.

"We continue to work through the patent application processes related to the ^{12}CQ chip in Europe, Australia, and Hong Kong."

Archer is developing a world-first quantum computing processor chip technology

Patents protecting the ^{12}CQ chip have now been granted in Japan (ASX ann. 20 Jan 2021), South Korea (ASX ann. 10 Aug 2021), China (ASX ann. 11 Aug 2021), and the US. The patent application process and procedures for the additional patent applications in the jurisdictions of Australia, Europe, and Hong Kong are ongoing.

About Archer

Archer is a technology company developing advanced semiconductor devices, including processor chips that are relevant to quantum computing. Archer is developing the ^{12}CQ chip, a world-first qubit processor technology, that could allow for quantum computing powered mobile devices ('QPMDs'). For more information, please view Archer's webinar with IBM.

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

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