

ASX Announcement ([ASX: AXE](#))

13 July 2023

Archer transfers biochip graphene sensor technology design to a commercial fab to verify scalability

Highlights

- Archer Materials has successfully completed a proof of concept biosensing graphene transistor for use in its biochip.
 - The design has been submitted to a commercial foundry for a Multi-Project Wafer run.
 - Fabrication at commercial foundries to verify the scalability of Archer's design will occur in coming months with delivery of chips expected by the end of 2023.
 - Archer has started discussions with potential global foundry partners for initial small production runs of its graphene chip designs to evaluate the reliability of the product.
 - This is a major step towards the potential commercialisation of Archer's biochip technology.
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Archer Materials Limited ("Archer", the "Company", "ASX: AXE"), a semiconductor company advancing the quantum computing and medical diagnostics industries, has completed a proof of concept biosensing graphene transistor for use in its biochip, and submitted the technology design to a commercial foundry to verify scalability.

Technology design transfer of gFET to a commercial semiconductor foundry

Archer is transferring its first generation graphene field effect transistor ("gFET") design to a foundry partner, following the completion of its optical lithography-compatible chip layout for its gFET device.

Archer's optical lithography has electrodes, bond pads, and other graphene componentry, that allow the biochip's sensor device design to scale more easily to produce complete wafers in collaboration with commercial foundries.

The Archer-designed gFET sensing chips will be produced by a commercial foundry, with the aim of Archer validating its design to ensure appropriate scalability for the manufacturing process. Archer expects completed runs to arrive at the end of 2023. The runs will be evaluated to test which foundry and process are best suited to Archer's technology. Archer's design and process can then be scaled to manufacture complete wafers containing the graphene-based sensors for biochip integration in collaboration with a range of different commercial foundries.

Archer has, in parallel, started discussions with potential global foundry partners for initial small production runs of its graphene chip designs to evaluate the reliability of the product. The latest development follows the recent announcement on 10 March 2023 in which the Company gained electronic control of the sensitivity of its incorporated gFET devices so it can better target biomolecules. This followed Archer's early-stage biochip prototype with an integrated system platform for biosensing announced to the market on 16 November 2022, after having developed a 'wetable' gFET announced on 24 October 2022.

Commenting on the biochip technology transfer to a commercial fab, Dr Mohammad Choucair, CEO of Archer, said,

“Archer has made some impressive progress of its biochip by essentially transferring the core sensing technology from concept to design. We have done this in-house and now look to have it externally fabricated, so it can be foundry compatible and scaled to manufacture. The team is also currently improving its functionality to better detect diseases.

“Developing the biochip is an important project for not only Archer, but for the broader world we live in. There is a heightened focus around the globe to detect and prevent disease. Archer’s biochip aims to do both through a highly sensitive graphene material and powerful data analytics that seeks to improve on-chip disease diagnosis and health outcomes. This will truly make it a ‘Lab-on-a-Chip’.”

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

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About Archer

Archer is a technology company that operates within the semiconductor industry. The Company is developing advanced semiconductor devices, including chips relevant to quantum computing and medical diagnostics. www.archerx.com.au