Google’s first truly custom chip for Pixel devices won’t arrive until 2025

According to a report by *The Information*, Google originally planned to replace the modified Samsung Exynos chipsets it uses in Pixel phones with a “Redondo” chip designed in-house sometime in 2024. However, the report claims that Google has now pushed that planned release window back to 2025 and will instead introduce a new custom processor codenamed “Laguna.”

A former Google chip executive told *The Information* that challenges with retaining employees and coordinating development between US and Indian teams are at least partly to blame for the delay. The team behind the project was frustrated by Google’s decision to cancel the development of several Tensor chips over the last two years, according to the outlet’s source. We have contacted Google to confirm these reports.

The story sounds similar to Meta’s struggle in attempting custom chip designs for VR and mixed reality gear, then opting to cut a deal with Qualcomm to use Snapdragon XR chips for the “future roadmap of Quest products” and “other devices.”

The Redondo processor will apparently be used to design Google’s new Tensor G5 chip

Google is apparently sticking with semi-custom versions of Samsung’s chips for the time being but plans to move manufacturing over to TSMC — the chipmaking giant behind Apple’s iPhone chips and many, many others. According to the report, “Laguna” will also utilize an advanced packaging

technology used almost exclusively by Apple that provides greater power efficiency while maintaining a thin chip profile.

According to the report, the Tensor team couldn't provide TSMC with Redondo's design by the 2022 deadline for trial production, in spite of cutting some of its features. The former Google executive told *The Information* that Redondo will instead be produced as a test chip that will help the Tensor engineers design its new Laguna processor.

This will reportedly be called the Tensor G5 and built on TSMC's 3nm process. The advancements in power efficiency and performance mean that these 3nm chips are in high demand — Apple allegedly reserved 90 percent of TSMC's manufacturing for the first-generation 3nm process earlier this year.

The Exynos-based Tensor chips used in current Pixel phones have experienced overheating issues

Google is aiming to fully ditch Samsung by 2025 in favor of designing its Tensor processors in-house, but *The Information* claims that the search giant will continue licensing Arm CPU and GPU cores for the foreseeable future. There are several potential benefits to Google moving Tensor development away from Samsung, though — the Samsung Exynos-based Tensor chips have been criticized for running hot even with modest workloads, for example, and even Samsung's own Exynos-based phones have some glaring performance issues. Taking development in-house could allow Google more freedom to make specific changes to its chip designs, benefiting future Pixel phones, tablets, watches, or any other hardware in its plans.

Designing your own custom processors is expensive, however, and Google may not have the market presence to ensure it'll see returns from such a heavy investment. Google doesn't disclose how many Pixel units it sells, but according to IDC data reported by *Bloomberg* last October, the company sold 27.6

million Pixel phones since launching the device in 2016. By comparison, Samsung and Apple shipped over 257 million and 232 million phone units, respectively, in 2022 *alone*, according to research firm Canalys.

https://www.theverge.com/2023/7/6/23786156/google-pixel-custom-chip-manufacturing-tensor-2025