

# Apple plans to overhaul entire Mac line with AI-focused M4 chips

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Credit: Armand Valendez from Pexels

Apple Inc., aiming to boost sluggish computer sales, is preparing to overhaul its entire Mac line with a new family of in-house processors designed to highlight artificial intelligence.

The company, which released its first Macs with M3 chips five months ago, is already nearing production of the next generation—the M4 processor—according to people with knowledge of the matter. The new chip will come in at least three main varieties, and Apple is looking to update every Mac model with it, said the people, who asked not to be identified because the plans haven't been announced.

The new Macs are underway at a critical time. After peaking in 2022, Mac sales fell 27% in the last fiscal year, which ended in September. In the holiday period, revenue from the computer line was flat. Apple attempted to breathe new life into the Mac business with an M3-focused launch event last October, but those chips didn't bring major performance improvements over the M2 from the prior year.

Apple also is playing catch-up in AI, where it's seen as a laggard to Microsoft Corp., Alphabet Inc.'s Google and other tech peers. The new chips are part of a broader push to weave AI capabilities into all its products.

Apple is aiming to release the updated computers beginning late this year and extending into early next year. There will be new iMacs, a low-end 14-inch MacBook Pro, high-end 14-inch and 16-inch MacBook Pros, and Mac minis—all with M4 chips. But the company's plans could change. An Apple spokesperson declined to comment.

Apple shares gained more than 2% to \$171.20 as of 1:12 p.m. in New York on Thursday. They had been down 13% this year through Wednesday's close.

The move will mark a quick refresh schedule for the iMac and MacBook Pro, as both lines were just updated in October. The Mac mini was last upgraded in January 2023.

Apple is then planning to follow up with more M4 Macs throughout 2025. That includes updates to the 13-inch and 15-inch MacBook Air by the spring, the Mac Studio around the middle of the year, and the Mac Pro later in 2025. The MacBook Air received the M3 chip last month, while the Mac Studio and Mac Pro were updated with M2 processors last year.

The M4 chip line includes an entry-level version dubbed Donan, more powerful models named Brava and a top-end processor codenamed Hydra. The company is planning to highlight the AI processing capabilities of the components and how they'll integrate with the next version of macOS, which will be announced in June at Apple's annual developer conference.

The Donan chip is coming to the entry-level MacBook Pro, the new MacBook Airs and a low-end version of the Mac mini, while the Brava chips will run the high-end MacBook Pros and a pricier version of the Mac mini. For the Mac Studio, Apple is testing versions with both a still-unreleased M3-era chip and a variation of the M4 Brava processor.

The highest-end Apple desktop, the Mac Pro, is set to get the new Hydra [chip](#). The Mac Pro remains the lower-selling model in the company's computer lineup, but it has a vocal fan base. After some customers complained about the specifications of Apple's in-house chips, the company is looking to beef up that machine next year.

As part of the upgrades, Apple is considering allowing its highest-end Mac desktops to support as much as a half-terabyte of memory. The current Mac Studio and Mac Pro top out at 192 gigabytes—far less capacity than on Apple's previous Mac Pro, which used an Intel Corp. processor. The earlier machine worked with off-the-shelf memory that could be added later and handle as much as 1.5 terabytes. With Apple's in-house chips, the memory is more deeply integrated into the main

processor, making it harder to add more.

The big focus for Apple this year is to add new artificial intelligence features across its products. The company is planning to preview a slew of new features at its June developer conference. A large swath of those features are designed to run on the devices themselves—rather than in remote servers—and speedier chips will help drive those enhancements. Apple is also planning to make AI-focused upgrades to this year's iPhone [processor](#).

The company's switch to in-house chips was part of a long-running initiative known as Apple Silicon. The tech giant started using its own semiconductors in the original iPad and iPhone 4 in 2010, before bringing the technology to the Mac in 2020. The goal has been to better unify its hardware and software with underlying components and move away from processors made by Intel.

So far, the effort has been a success, helping boost performance and ease the redesign of devices such as the latest MacBook Air, iMac and MacBook Pro. Apple's Mac chips are based on the same underlying Arm Holdings Plc architecture as the processors in the iPhone and iPad, enabling thinner products with better battery life and less need for cooling fans.

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