

Apple is just getting started with Apple Silicon

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Editorial

Mike Peterson | Aug 02, 2022

Apple has officially cleared out any remaining trace of Intel on its newest redesigned M2 MacBook Air and MacBook Pro models. Looking ahead, the company is just getting started.

The redesigned MacBook Air is an overhaul of the company's most popular portable notebook. Although other models, like the 14-inch MacBook Pro, come equipped with Apple Silicon chips, the 2022 MacBook Air provides the clearest picture of what we can expect from future Macs.

Apple kills the last trace of Intel

Apple appears to be going all-in on its own first-party chips. Or, at the very least, it's committed to transitioning away from Intel — even when it comes with the tiniest components.

In the latest MacBook Air and M2-equipped MacBook Pro models, Apple has replaced an Intel-made chip that's used for controlling the laptop's USB and Thunderbolt ports with a custom-designed piece of silicon.

According to an iFixit teardown of the device, the USB4 retimer is no longer Intel's JHL8040R. Instead, it's a custom U09PY3 chip. It isn't clear if the piece is Apple-designed or made by another manufacturer.

Although the change largely went unnoticed until semiconductor industry watcher Skyjuice pointed it out, it does mean that the newest MacBook Air and Pro models don't have any Intel-made components in them.

Technically, Apple still has a couple of Mac models powered by Intel chips. Most notably, the current Mac Pro is still Intel-based, and the company is hanging on to a low-powered Mac mini model.

But the M2 MacBook Air and MacBook Pro both herald the end of an era. Apple will almost certainly follow suit with its own portable notebooks, including redesigns of the 14-inch MacBook Pro and 16-inch MacBook Pro.

In other words, there will come a time when there won't be a single Intel part in any Mac product. And, it's soon, given that Apple has already said that a Mac Pro is on the way.

Intel's problems

Apple has long has a focus on reducing its reliance on outside suppliers. Designing its own Mac chips in house is just one part of that strategy. However, it's likely that Intel's faults also played a part.

Back in June 2020, a report indicated that Intel's quality assurance issues with its Skylake chips may have played a part in Apple ditching them.

Beyond that, Intel has also had problems sticking with its roadmaps and deadlines. Just a month after the quality assurance news broke, Intel delayed the rollout of its 7-nanometer chips by six months. Before that, Intel had delayed its 10nm chip shipments for three years.

And, it hasn't been tick-tock for about a decade where's there's innovation, then refinement, then back to innovation. It's been tick-tock-tock-tock more often.

Apple is better off designing its own chips. While issues like semiconductor constraints and Covid manufacturing lockdowns can snarl production, those would still be issues on top of a chip supplier that can't meet its own deadlines.

Bound by Intel no longer

Apple doesn't design enclosures in a vacuum. When it designed the 2016 MacBook Pro enclosure, it relied on what Intel was promising it could deliver from a thermal and power perspective.

However, Intel was years behind what it promised to release from 2015 and on. Apple has historically used an enclosure for five to six years before moving on. And, that MacBook redesign was a victim of Intel's promises made, and not delivered.

Those promises? Intel is fulfilling them *now*, years after the MacBook was killed.

Instead, the 2022 MacBook Air represents a new age for the laptop that famously came out of an envelope. It's a MacBook Air designed with Apple Silicon in mind. It charts a new path for the company's portables, and for the Mac in general.

Apple has always preferred to keep tight control of its stack, from firmware, to full hardware, to operating systems. This "full stack" mentality is complete in the ultimate computing-as-an-appliance device, the iPhone.

Apple Silicon and other custom chip designs are the purest expression of that on the more-open Mac. And the new MacBook Air signals a sea change in how the company views its desktop and portable computers.

Future possibilities

Apple may not be planning on merging the iPad and Mac anytime soon, but there's no doubt that the company will continue bringing more iPhone- or iPad-like features to the Mac.

Apple Silicon was just the first example — there are other echoes of Apple's smartphone design in its newest machines. For example, the newest MacBook Air uses a distinctly iPhone-esque connector for its internal battery.

There's not a limit of how far Apple can go here. By ditching Intel, the company is unburdening itself from the shackles of the chipmakers legacy technologies. Apple Silicon allows the company to charge ahead.

The Apple Silicon iPad and M2 MacBook Air are one side of the coin, and compact powerhouses like the Apple Studio are the other.

Apple Silicon has already introduced a lot of benefits, both for Apple itself, and for consumers. For example, it's hard to argue against both the performance and power consumption boosts that Apple Silicon brings to Mac models.

And Apple has room to grow, to be sure. The company could expand its thermal envelopes to get a higher-power chips without the need for massive cooling mechanisms or enclosure. An Apple Silicon Mac Pro could have a single "M2 Max," or it could sport a plethora of M-series chips.

Although Intel chips are catching up to Apple Silicon, they're doing so at a much higher power draw. That means comparable Intel-based machines need bigger batteries, which could put them at a disadvantage for portability and travel. The TSA has restrictions on batteries with more than 100 watt hours, for example.

Extrapolating based on the M2 chip, Apple's silicon has a lot of room for growth in this area too. The Cupertino tech giant is tailor-making its own parts according to its own specifications. It's no longer limited to another company's innovations, only its own.

From new controller chips to technologies that can provide additional efficiency for Apple products, segments like the Mac are only going to get better as time goes on.

While many review companies, such as *Wirecutter*, are putting Mac laptops in their own Apple-specific category, they really deserve to be compared to Intel rivals. Most users don't care if their machines are x86 or Apple Silicon, and may choose the latter silicon for its quietness, thermal efficiency, and long battery life.

It's been two years since the public-facing Apple Silicon hardware transition started, and many more since the initial plans were made internally. Through the company has already achieved a tremendous amount since then, Apple is still just getting started.
