Apple M1 Chip

A Whole New Possible

jamf

Small chip, huge leap

Every once in a while

the world of technology makes a giant leap forward. The first personal computers, wide adoption of the internet and the first iPhones were not only fascinating and useful technology in and of themselves, but they also transformed an entire industry, spurring competitors and collaborators to new heights.

The Apple M1 chip heralds one of those leaps.

Reviewers love the M1

Apple's ARM-based M1 chip

will mean astounding efficiency, speed and performance for Mac and Mac-based programs and frameworks, and reviews were . . . gushing might not be too strong a word for it.

One reviewer for engadget.com positively swooned over his experience with the new M1-based MacBook Air[1]:

"Apple's new MacBook Air is stunningly fast. It's raring to go the instant you open its lid. Want to browse the web? Watch it load bloated sites faster than you've ever seen on a laptop. Want to play some games? Step back as it blows away every ultraportable, with no fan noise to get in the way. And if you need to take a break, don't worry. It's got enough battery life to last you all day. Using the new MacBook Air is like stepping into a new world where we can demand much more from ultraportables."

1 "MacBook Air M1 review: Faster than most PCs, no fan required," engadget.com, November 17, 2020

One gobsmacked developer pointed out on his Twitter feed that Xcode 12.3 beta unzips in five minutes on an M1 Apple Silicon-based machine versus 13 minutes and 22 seconds on a device using Intel i9.

And Jamf's own CEO Dean Hager, after ordering his own MacBook Air with the M1 Chip described it as "Game. Changed," the wakeup speed "instant & awesome," and waxed enthusiastically:

> It's clear why Apple mentioned coding in the keynote – M1 is screamingly fast for developers. I almost feel sorry for Intel!
>
> My Unwrap project (13k lines Swift, 10k Obj-C, more) was 19.5s on Intel vs 11.7 on M1.
>
> AudioKit (39k C, 27k Swift, 12k C++) was 73s on Intel vs 31 on M1.
>
> **@twostraws**

> "Whoa! Rendering an iMovie video on #MacBookAir with #M1. No time to get a coffee. Scorching.
>
> **@deanhager**

> Combine that w/ using my finger for cloud identity w/ #JamfConnect, & I'm connected to all my resources crazy fast every time I sit down."
>
> **@deanhager**

An instant and lasting impact

But it's more than merely a new chip with better speed and performance.

It's about transforming the industry as a whole. "It is really about the continuing — and even accelerating — shift to the next phase of computing," says Om Malik[2], founder of GigaOM and partner at True Ventures.

This next phase is the laptop and desktop moving from being the legacy tools of modern mobile computing devices to finally taking their place as peers to mobile devices and tablets. The public is now accustomed to devices that are always connected, always accessible and ones that pack a punch. Waiting for a laptop or desktop to boot or for software to load simply doesn't cut it anymore. With the M1, those waits are over.

Laptops with such capabilities give every user a far greater amount of speed, efficiency and even mobility.

An easily portable MacBook Air can now outperform most desktops, and technology and creative workers can work on the go with superior performance.

2 "Steve Jobs's last gambit: Apple's M1 Chip," OM.co, November 17, 2020

Good for tech; good for Apple users

It's important to acknowledge that Apple might be a tech visionary, but it is also first and foremost a customer-focused business.

And this is an important strategy move for Apple themselves — with a full stack of Apple-made hardware, software and chips they need depend on no one to fuel their innovations but themselves. Jobs himself spoke of this idea as "the whole widget."[3]

This gives Apple flexibility and control, as well as giving them the ability to put high-performance tech into the hands of their customers faster.

Apple CEO Tim Cook says that their "long-term strategy of owning and controlling the primary technologies behind the products we make" is vital to their business expansion plans[4]. "Apple Silicon is totally in keeping with the strategic goal of Apple to really control an entire stack," CCS Insight research director Wayne Lam said recently to CNBC. "Now in computing, they own everything from silicon to the software to how the user moves the mouse around, so it's tremendously integrated."

This offers Apple more market share, and offers end-users a more seamless, integrated experience. This level of integration, the report went on, allows Apple to completely control their costs, their speed-to-market and their quality and compatibility.

Apple is now poised to take the enterprise by storm — and to take the tech industry into the future.

3 *"We make the whole widget!" Wired, January 1, 2007*
4 *"Apple boosts strategy of owning core technologies as it unleashes M1 Chip," USA Herald, November 11, 2020*

What is the M1 chip, and what does it do?

The M1 is the first computer chip to be designed in-house by Apple.

It offers Apple's unified memory architecture (UMA) that means users will enjoy high-bandwidth and low-latency memory in one space. It features an 8-core CPU as well as the default eight gigabytes of memory or an optional 16. Four of the M1's cores are dedicated to high-power performance, while the other four are for efficient low-power computing. That evens out to a 10W thermal envelope overall (a thermal envelope is how much power a device uses and how much heat it outputs), with the low power cores taking up a tenth of the power needed for the high-power cores. The chip also has a total of 16 billion transistors. The M1 also has a separate 16-core neural engine for machine learning tasks.

This means that apps and platforms can access data without copying it between multiple pools of memory. That equals smoother transitions, a quieter machine and speed, speed, speed.

The M1 Chip offers:

- Three times the performance per watt than that of previous Mac chips
- Two times the CPU speed
- A rather astounding battery life of two-to-three times that of machines without the M1
- Two times the graphics speed than the latest PC laptop chip

What does this mean for users?

This results in faster in-app speed and processing, smoother integrations between Apple apps, and better compatibility between devices.

- Design and dev teams will appreciate that the M1 speeds high-resolution photo editing by a factor of three, render even complex timelines in Final Cut Pro up to six times faster, and compile Xcode up to three times faster than before.[6]

- The 16-core Neural Engine of M1 can also make video analysis, voice recognition and image processing much faster.

6 "Apple M1 Chip Performance is Insane: Here's Why," iphonehacks.com, Nov 10, 2020

The challenge

While the M1 chip is unquestionably a huge leap forward for Apple, there will be an adjustment period as some software companies scramble to keep up.

This can create headaches for developers as they attempt to fully support their applications on those devices using M1 chips, and Mac admins as they attempt to integrate Mac computers using the M1 chip into their existing Intel-based fleet. Just how nimbly this will happen depends on how quickly application creators can offer a universal binary that can smoothly accommodate and integrate both Intel-based and M1-based Mac computers.

Until then, applications will have to rely on Rosetta 2 to automatically translate Intel-supported apps to M1 devices with any associated performance impacts.
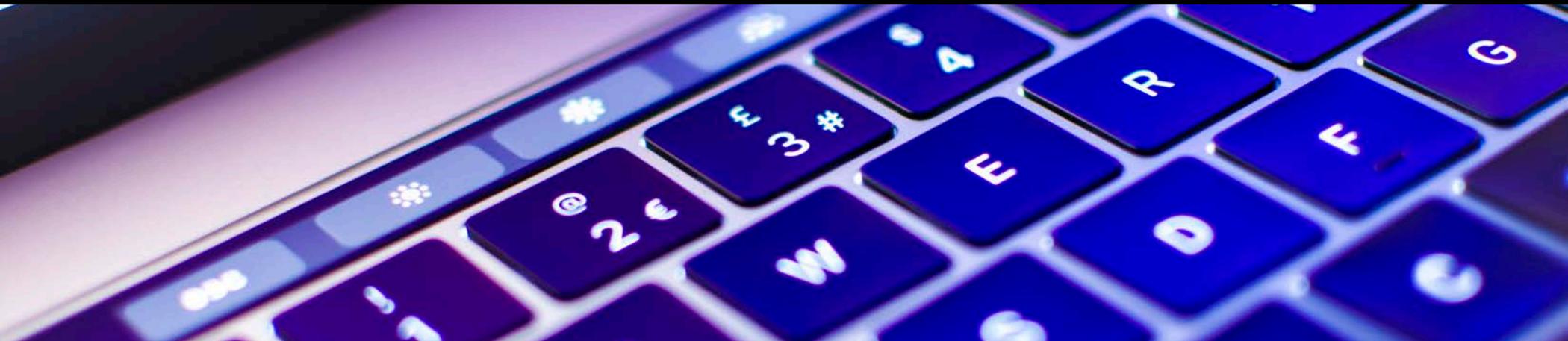
What is a universal binary?

A universal binary is a base format that allows executable files to run on multiple chips:

Intel as well as the M1. Apple has an excellent piece on how to build a universal binary in their documentation section.

In the meantime, many developers are using Rosetta 2: a translation process that allows applications optimized for Intel to run on the M1 Apple silicon-based processor.

This is only a stopgap, however, as it can delay or prolong start-up times; it is meant only for developers to bridge the time between their old binary to a new universal one.

You can find out which apps are optimized for M1 Apple Silicon Macbooks by following the process described in a blog post from WCCFTech online.[7]

7 "[How To] Find Out Which Apps are Optimized for M1 Apple Silicon MacBooks," wccftech.com, November 27, 2020

How the M1 will affect Jamf's customers

M1 and legacy Mac management

Due to our close partnership with Apple and our same-day mantra of being ready to go the day Apple releases new products, Jamf was ready to support both legacy Mac devices and those with the M1 Chip from the get-go.

jamf | PRO

Jamf users will see no hiccups when integrating M1 devices into their fleets as well as provisioning and managing them. And if customers are using other apps that are not yet using a universal binary, Jamf can help them to install Rosetta 2 in order to keep their workflows moving.

jamf | SCHOOL

Jamf School, fully cloud-hosted, has a new feature that allows teachers greater flexibility with the use of the Jamf Teacher app for Jamf School on MacOS. It was designed specifically with the upcoming M1 Chip in mind.

jamf | NOW

Fully cloud-hosted, Jamf Now is unaffected by the new chip and will continue to deliver affordable mobile device management (MDM) provisioning and managing of workplace devices.

M1 and legacy Mac protection and connection

jamf | PROTECT ⧉

- Already uses a universal binary — can protect both M1 Chip and legacy Mac devices seamlessly

- Kextless -- preventing Mac-specific attacks without the need to install a kernel extension

- Using the Apple Endpoint Security Framework means that Jamf Protect adapts easily to the new restrictions in macOS Big Sur and those imposed by M1 devices

jamf | CONNECT ⧉

- Also uses a universal binary, which means it doesn't require anything additional to work on Apple silicon hardware; it just works

- Small changes to the user experience will still allow for users to use a single sign-on (SSO) process for a more secure, more user-friendly connection

Quite obviously, Jamf believes in Apple.

And we believe it's never been a better time to invest in Apple devices and Jamf management, protection, and connection than now.

As adoption of Mac devices continues to grow in the enterprise with 55% of surveyed businesses either allowing or offering Mac devices for employee use[8], Apple continues to make Mac top of line with serious investment in making sure Mac has the power everyone in the enterprise needs, and will continue to have that power for years to come.

Learn how Jamf and Apple can help your enterprise succeed at jamf.com.

GET STARTED

Or contact your preferred authorized reseller of Apple devices.

8 "More than Half of All Companies Use Mac – Parallels Survey Part 1," parallels.com, June 3, 2020