



What was
announced
at this year's
Keynote? (pt 1)

LIGHTER



It's that time of the year again and Apple's WWDC 2023 event announced a range of new Macs; discussed all of the software updates arriving later this year; and most importantly announced a brand new product which is due to arrive early 2024.

First up is a new 15-inch MacBook Air which has been anticipated for while. The new Mac comes with a 15.3-inch Liquid Retina display with a resolution of 2880x1864. The display supports up to 1 billion colours and a brightness of 500 nits. One thing Apple were keen to point out is that it is 25% brighter and has twice the resolution of a comparable PC laptop (based on 12 months of available sales data of the best selling 15-inch i7 laptop). Apple also claimed that the new Air is the world's thinnest 5-inch laptop at 11.5mm weighing in at just 3.3 pounds, making it 40% thinner and lighter than a comparable PC laptop. Fortunately, the keyboard appears to be a Magic keyboard, and they have not introduced a new 'butterfly' keyboard to shave those millimetres off. It seems they learned their lesson with that!

Under the hood the new MacBook Air is powered by the

Apple M2 chip with 8-core CPU consisting of four performance cores and four efficiency cores. The M2 also has a 10-core GPU and 16-core Neural engine. The M2 also delivers 100GB/s memory bandwidth and the 15-inch Air will be configurable up to 24Gb of unified memory. All of this power does not impact battery life with Apple quoting up to 18 hours of battery life.

The new Air features a 1080p FaceTime HD camera for great quality conference calls and this is backed up by a six-speaker sound system and three mic array with directional beam-forming, although these do not appear to be the Studio mics seen on the Pro line. The speaker system supports Spatial Audio with Dolby Atmos for great sound in music and movies.

Connectivity-wise, the Air features MagSafe 3 charging; two Thunderbolt ports that can support monitors up to 6K; and a 3.5mm headphone jack, although it does not appear to be a high impedance one like we have seen on other MacBook's. WiFi 6 (802.11ax); and Bluetooth 5.3 cover the

Air's wireless capabilities.

The new MacBook Air 15 will be available in four colours: Silver, Starlight, Space Grey and Midnight. One plus with the introduction of a larger MacBook air is that the 13-inch M2 model is having its price repositioned to £1,149.00/AU\$1,799.00. The new 15-inch MacBook Air starts at £1,399.00/AU\$2,199.00 and will be configured with 8GB of unified memory with options for 16 or 24GB and 256GB of storage configurable up to 2TB.

It can be pre-ordered now and starts shipping on the 13th June.

MORE PRO

Next up was two new updates to the high-end of Apple's computer offering with announcements of an upgraded Mac Studio and the new Apple M2 Mac Pro. The introduction of the new Mac Pro finalises Apple's transition to their own silicon and with the introduction of the new M2 Ultra chip both Mac Studio and Mac Pro are potentially the fastest computers out there at the moment.

The new Mac Studio was actually, for a few months, lagging behind the more recent Mac Mini that gained access to the M2 chip and the M2 Pro, which is marginally better than some of the M1 variants the Studio launched with. That has now been rectified with Mac Studio having access to either M2 Max or M2 Ultra. The M2 Max is up to 50% faster than the previous generation and up to 4x faster than the most powerful Intel based iMac. The M2 Max chip features a 12-core CPU with up to a 38-core GPU and configurable with up to 96GB of unified memory. This unified memory has a bandwidth of 400GB/s.

The M2 Ultra is up to 3x times faster than the M1 Ultra found in the previous Mac Studio with this lead increasing to 6x over the most powerful Intel-based iMac. The new M2 Ultra for Mac Studio features a 24-core CPU, up to a 76-core GPU and

can be configured with up to 196GB of unified memory, which has a bandwidth of 800GB/s. M2 Ultra also features a 32-core Neural Engine.

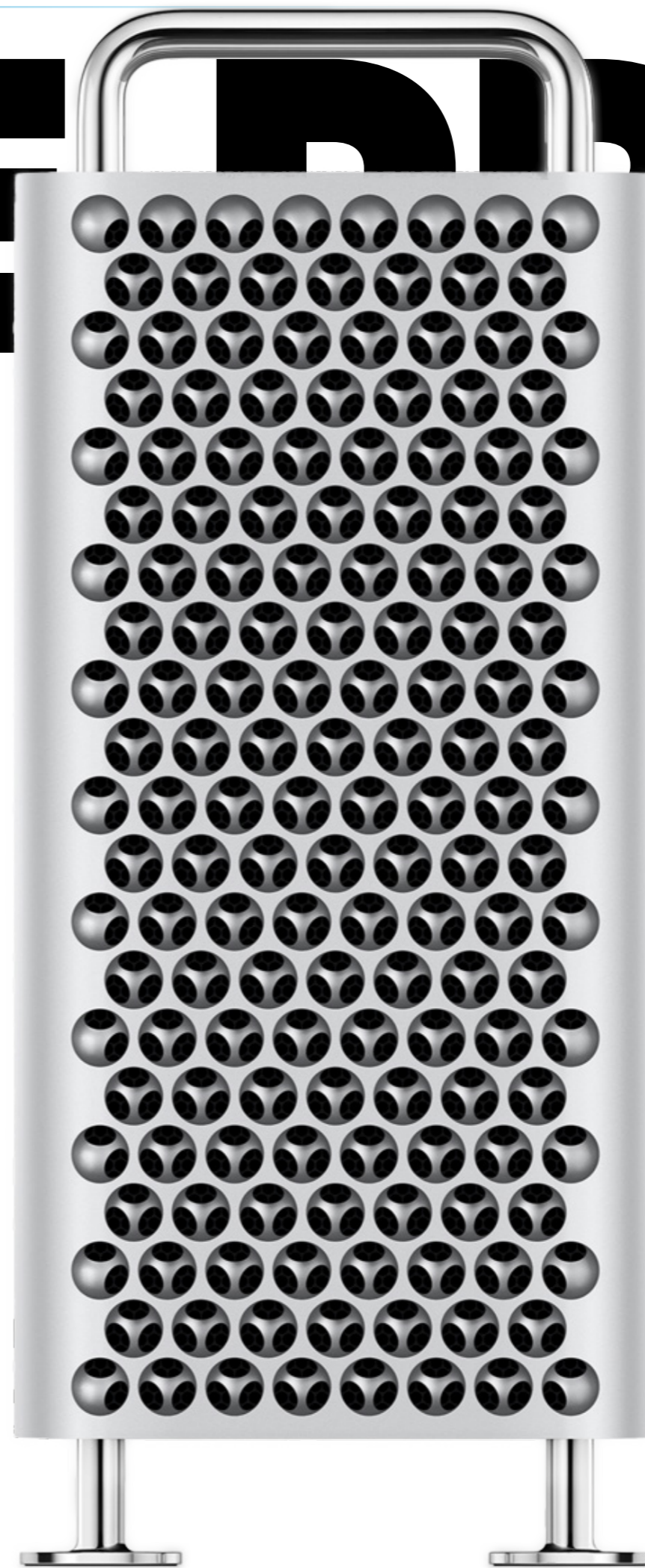
The HDMI in the Mac Studio supports resolutions of up to 8K at 240Hz. An M2 Ultra equipped Mac Studio will be able to support up to six Studio Displays. That's over 100 million pixels driven by one computer! This HDMI is joined by four Thunderbolt, a 10Gb ethernet port, and two USB-A ports. Around the front it still features the two USB-C ports and an SD card slot. There is also Bluetooth 5.3 and WiFi 6E built-in.

The new Mac Studio launches next week starting at £2,099.00/AU\$3,299.00

The Mac Pro has finally been upgraded from its Intel shackles and, as mentioned before, that means Apple have now fully moved their entire range of computers to their own silicon, which was a process that started a number

of years ago. The previous model started with an 8-core CPU but the new model comes with the M2 Ultra as standard with the 24-core CPU, and 76-core GPU but with twice the starting memory and SSD storage with 64GB and 1TB respectively. However, unlike the Mac Studio, the Mac Pro can be enhanced via separate PCIe expansion cards. The previous models graphics could be enhanced via a separate Afterburner card. The new model now features the power of seven of these cards built-in and, like the Mac Studio, the Mac Pro can play 22 streams of 8K ProRes video at once.

Mac Pro features seven PCIe expansion slots with six open supporting gen 4: twice as fast as before! Mac Pro can be configured with Digital Signal Processing (DSP) cards for audio pros, serial digital interface cards (SDI) I/O cards for connecting professional cameras and monitors or even more storage or networking depending on the workflow requirement.



The new Mac Pro's connectivity has been expanded over the original, now featuring eight Thunderbolt 4 connectors, six of those located on the back and two on the top. There are two of the higher-bandwidth HDMI ports with support for the 8K 240Hz, two 100Gb ethernet ports and a headphone jack with support for high impedance headphones. There are also three USB-A ports for legacy devices. Finally, there is WiFi 6E and Bluetooth 5.3.

The new Mac Pro also launches later in the month starting at £7,199.00/AU\$11,999.00.

A NEW VISION

After the software announcements, Tim Cook took to the old stage to announce 'One last thing'.

As rumoured, Apple have been working on an Augmented Reality headset, which they are calling Apple Vision Pro. Apple are not simply calling this an AR headset though. This is their first spatial computer! I find the name interesting because Pro suggests professional use and the launch price reinforces this with it launching in the US early next year for \$3,499.00. I must say I was pretty disappointed when I saw the price, hoping that Apple were about to launch a product that was going to disrupt a market that has struggled to really take off. A sub \$1,000 price may have done this but the launch price as it stands is firmly in early adopter territory. Hopefully, after a year or two, Apple will be able to bring costs down or construct a competent but lower spec model that meets a lower, more consumer friendly price, perhaps called 'Apple Vision'.

But for now, Apple Vision Pro is



what we have, or will have.

Vision Pro's new operating system, VisionOS, is controlled by a user's eyes, hands and voice. Early reports suggest that the eye tracking in the headset is next level with well known tech YouTuber MKBHD actually suggesting it's "magical". A word he himself says he is usually very careful to use when talking about tech. He also stated that the displays inside the headset are great with 23 million pixels across both eyes.

Apple only demonstrated their own apps like Safari, Apple TV, FaceTime, Messages etc. with Disney highlighting the one third party ready to show at this time. Not too much to worry about here as it was announced at WWDC which is usually their developer focused event so there are likely to be developers that will jump at the opportunity to make their app work with Vision Pro. It's also worth noting that Apple have been pushing AR through the iPhone for years so there are likely to be developers that are already in a good position to adapt their apps for the new device!

I think a major draw for many



will be the display for watching movies and TV shows with the high res displays creating the impression of a screen that's over 100 feet wide with an advanced spatial audio system. With Apple Immersive Video, users can watch their content in 180° recordings of other places like the lake and woodlands above, their own personal movie theatre or with Disney's app, watch Star Wars on the surface of Tatooine!

Environments like those mentioned before can be expanded beyond the user's physical room with a twist of the Digital Crown increasing or decreasing the environment size. It does sound intriguing and, if this all works as well as initial reports say, it really could be something special.

Apple is introducing its first three-dimensional camera to Vision Pro, which allows users

to capture spatial photos and videos with Spatial Audio. Viewable via the Photos app. These videos and photos can be viewed as life size, making it seem like they are back in the moment the memory was made. Panoramic photos taken on iPhone can be expanded and wrapped around users making it feel like they are back at the moment the photo was taken.

The FaceTime app is also "going spatial" as Apple puts it. Callers are represented in life size tiles and if there are multiple callers, Spatial Audio places the audio accurately in the room where they are positioned. Users who are using Vision Pro are represented as a Persona. This is a digital scan that is created using Machine Learning which reflects the user's face and hand movements in real time.

Apple will be launching an all-new app store alongside Vision Pro, which will feature all new Vision Pro apps, as well as giving access to hundreds of thousands of iPad and iPhone apps that already work. Apple's hope is that developers jump onboard to design all new experiences and redesign existing ones for Vision Pro ready for when it launches next year. Next issue we will carry on discussing Vision Pro, and

the other announcements made at this year's WWDC 2023. See you in a little while!