

Mac Studio Max (2022) – Technical Specifications

Languages English

Year introduced: 2022



Finish

- Silver

Chip

Apple M1 Max chip

- 10-core CPU with 8 performance cores and 2 efficiency cores
- 24-core GPU
- 16-core Neural Engine
- 400GB/s memory bandwidth
- Media engine
 - Hardware-accelerated H.264, HEVC, ProRes, and ProRes RAW
 - Video decode engine
 - Two video encode engines
 - Two ProRes encode and decode engines
- Configurable to:
 - M1 Max with 10-core CPU, 32-core GPU, and 16-core Neural Engine

Memory

Apple M1 Max chip

- 32GB unified memory
- Configurable to 64GB

Storage¹

Apple M1 Max chip

- 512GB SSD
- Configurable to 1TB, 2TB, 4TB, or 8TB

Video Support

Simultaneously supports up to five displays:

- Support for up to four Pro Display XDRs (6K resolution at 60Hz and over a billion colors) over USB-C and one 4K display (4K resolution at 60Hz and over a billion colors) over HDMI

Thunderbolt 4 digital video output supports

- Native DisplayPort output over USB-C
- Thunderbolt 2, DVI, and VGA output supported using adapters (sold separately)

HDMI display video output

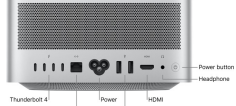
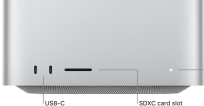
- Support for one display with up to 4K resolution at 60Hz
- DVI output using HDMI to DVI Adapter (sold separately)

Audio

- Built-in speaker
- 3.5 mm headphone jack with advanced support for high-impedance headphones
- HDMI port supports multichannel audio output

Connections and Expansion

- Four Thunderbolt 4 ports with support for:
 - Thunderbolt 4 (up to 40Gb/s)
 - DisplayPort
 - USB 4 (up to 40Gb/s)
 - USB 3.1 Gen 2 (up to 10Gb/s)
 - Two USB-A ports (up to 5Gb/s)
 - HDMI port
 - 10Gb Ethernet
 - 3.5 mm headphone jack
- On front (M1 Max):
 - Two USB-C ports (up to 10Gb/s)
 - SDXC card slot (UHS-II)



Communications

Wi-Fi

- 802.11ax Wi-Fi 6 wireless networking
- IEEE 802.11a/b/g/n/ac compatible

Bluetooth

- Bluetooth 5.0 wireless technology

Ethernet

- 10Gb Ethernet (Nbase-T Ethernet with support for 1Gb, 2.5Gb, 5Gb, and 10Gb Ethernet using RJ-45 connector)

Size and Weight

- Height: 3.7 inches (9.5 cm)
- Width: 7.7 inches (19.7 cm)
- Depth: 7.7 inches (19.7 cm)
- Weight (M1 Max): 5.9 pounds (2.7 kg)²

Electrical and Operating Requirements

- Line voltage: 100-240V AC
- Frequency: 50Hz to 60Hz, single phase
- Maximum continuous power: 370W
- Operating temperature: 50° to 95° F (10° to 35° C)
- Storage temperature: -40° to 116° F (-40° to 47° C)
- Relative humidity: 5% to 90% noncondensing
- Operating altitude: tested up to 16,400 feet (5000 meters)

In the Box

- Mac Studio
- Power cord

Configure to Order

Configure your Mac Studio with these options at [apple.com](#):

- M1 Max with 10-core CPU, 32-core GPU, and 16-core Neural Engine
- M1 Ultra with 20-core CPU, 48-core GPU, and 32-core Neural Engine
- M1 Ultra with 20-core CPU, 64-core GPU, and 32-core Neural Engine
- 64GB unified memory (M1 Max)
- 128GB unified memory (M1 Ultra)
- 1TB, 2TB, 4TB, or 8TB SSD

Mac Studio and the Environment

Mac Studio is designed with the following features to reduce its environmental impact:³

[See the Mac Studio Product Environmental Report](#)

Made with better materials

- 100% recycled rare earth elements in all magnets, representing 98% of the rare earth elements in the device
- 80% recycled aluminum in the enclosure
- 100% recycled tin in the solder of the main logic board
- 25% or more recycled plastic in multiple components

Energy efficient

- ENERGY STAR[®] certified⁴

Smarter chemistry⁵

- Mercury-, BFR-, PVC-, and beryllium-free

Green manufacturing

- Apple's Zero Waste Program helps suppliers eliminate waste sent to landfill
- All final assembly supplier sites are transitioning to 100% renewable energy for Apple production

Responsible packaging

- 100% of virgin wood fiber comes from responsibly managed forests
- 90% or more fiber-based packaging

Apple and the Environment

We're committed to making our products without taking from the earth, and to become carbon neutral across our entire business, including products, by 2030.

[See Apple's commitment](#)

Acoustic Performance

Declared noise emission values in accordance with ECMA-109

	Sound Power Level L _{W A,m} (dB)	Sound Pressure Level Operator Position L _{p A,m} (dB)
Idle	2.5 (K _v = 0.3)	15
Wireless web	2.5 (K _v = 0.3)	15

- L_{W A,m} is the mean A-weighted sound power level, rounded to the nearest 0.1 B.
- L_{p A,m} is the mean A-weighted sound pressure level measured at operator position (rounded to the nearest 1 dB).
- 1 B (bel) = 10 dB (decibel)
- K_v is the statistical adder for computing upper-limit of A-weighted sound power level.
- The quantity, L_{W A,c} (formerly called L_{W Ad}) may be computed from the sum of L_{W A,m} and K_v.
- The wireless web test browses 6 tabs with a mix of content including media.
- Configuration tested: Apple M1 Ultra, 20-core CPU / 48-core GPU, 64GB memory, 1TB storage.

- 1GB = 1 billion bytes and 1TB = 1 trillion bytes; actual formatted capacity less.
- Weight varies by configuration and manufacturing process.
- iMovie, GarageBand, Pages, Numbers, and Keynote are available on the Mac App Store. Downloading apps requires an Apple ID and a device that is compatible with the OS version required for each app.
- Data accurate as of product launch.
- ENERGY STAR and the ENERGY STAR mark are registered trademarks owned by the U.S. Environmental Protection Agency.
- Apple defines its restrictions on harmful substances, including definitions for what Apple considers to be "free of," in the [Apple Regulated Substances Specification](#). Every Apple product is free of PVC and phthalates with the exception of AC power cords in India, Thailand (for two-prong AC power cords), and South Korea, where we continue to seek government approval for our PVC and phthalates replacement.

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