

# MacBook Pro 16-inch - Tech Specs - Apple



## Chip



### Apple M2 Pro chip

12-core CPU with  
8 performance cores and  
4 efficiency cores

19-core GPU

16-core Neural Engine

200GB/s memory  
bandwidth

Media engine



### Apple M2 Pro chip

12-core CPU with  
8 performance cores and  
4 efficiency cores

19-core GPU

16-core Neural Engine

200GB/s memory  
bandwidth

Media engine



### Apple M2 Max chip

12-core CPU with  
8 performance cores and  
4 efficiency cores

38-core GPU

16-core Neural Engine

400GB/s memory  
bandwidth

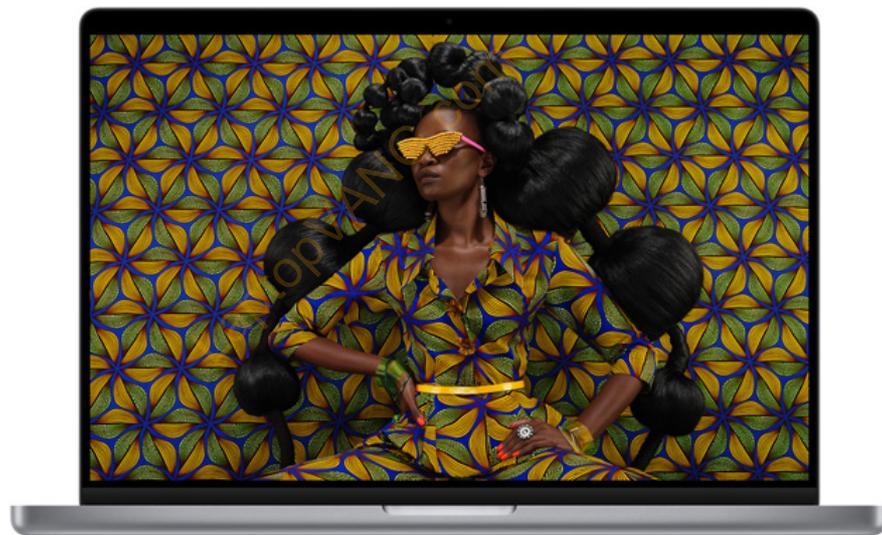
Media engine

Hardware-accelerated H.264, HEVC, ProRes, and ProRes RAW	Hardware-accelerated H.264, HEVC, ProRes, and ProRes RAW	Hardware-accelerated H.264, HEVC, ProRes, and ProRes RAW
Video decode engine	Video decode engine	Video decode engine
Video encode engine	Video encode engine	Two video encode engines
ProRes encode and decode engine	ProRes encode and decode engine	Two ProRes encode and decode engines
<b>Configurable to:</b>	<b>Configurable to:</b>	—
M2 Max with 12-core CPU and 30-core GPU or M2 Max with 12-core CPU and 38-core GPU	M2 Max with 12-core CPU and 30-core GPU or M2 Max with 12-core CPU and 38-core GPU	

## Display

### Liquid Retina XDR display

16.2-inch (diagonal) Liquid Retina XDR display;<sup>1</sup> 3456-by-2234 native resolution at 254 pixels per inch



#### XDR (Extreme Dynamic Range)

1,000,000:1 contrast ratio

XDR brightness: 1000 nits sustained full-screen, 1600 nits peak<sup>2</sup> (HDR content only)

SDR brightness: 500 nits

#### Color

1 billion colors

Wide color (P3)

True Tone technology

#### Refresh rates

ProMotion technology for adaptive refresh rates up to 120Hz

Fixed refresh rates: 47.95Hz, 48.00Hz, 50.00Hz, 59.94Hz, 60.00Hz

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<b>Memory</b>	<b>16GB</b> 16GB unified memory	<b>16GB</b> 16GB unified memory	<b>32GB</b> 32GB unified memory
	<b>Configurable to:</b> 32GB (M2 Pro or M2 Max), 64GB (M2 Max), or 96GB (M2 Max with 38-core GPU)	<b>Configurable to:</b> 32GB (M2 Pro or M2 Max), 64GB (M2 Max), or 96GB (M2 Max with 38-core GPU)	<b>Configurable to:</b> 64GB (M2 Max) or 96GB (M2 Max with 38-core GPU)

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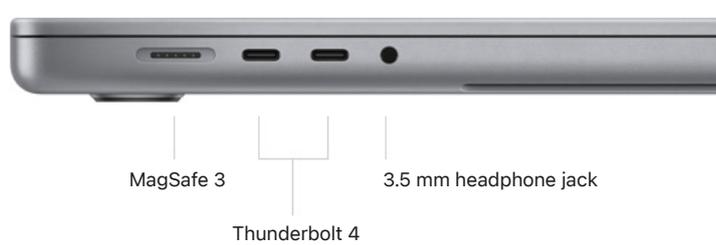
<b>Battery and Power<sup>3</sup></b>	Up to 22 hours Apple TV app movie playback Up to 15 hours wireless web 100-watt-hour lithium-polymer battery <sup>3</sup> 140W USB-C Power Adapter USB-C to MagSafe 3 Cable Fast-charge capable with included 140W USB-C Power Adapter
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<b>Storage<sup>4</sup></b>	<b>512GB</b> 512GB SSD	<b>1TB</b> 1TB SSD	<b>1TB</b> 1TB SSD
	<b>Configurable to:</b> 1TB, 2TB, 4TB, or 8TB	<b>Configurable to:</b> 2TB, 4TB, or 8TB	<b>Configurable to:</b> 2TB, 4TB, or 8TB

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<b>Charging and Expansion</b>	SDXC card slot HDMI port 3.5 mm headphone jack MagSafe 3 port  Three Thunderbolt 4 (USB-C) ports with support for: Charging DisplayPort Thunderbolt 4 (up to 40Gb/s) USB 4 (up to 40Gb/s)
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## Display Support

### M2 Pro

Simultaneously supports full native resolution on the built-in display at 1 billion colors and:

Up to two external displays with up to 6K resolution at 60Hz over Thunderbolt, or one external display with up to 6K resolution at 60Hz over Thunderbolt and one external display with up to 4K resolution at 144Hz over HDMI

One external display supported at 8K resolution at 60Hz or one external display at 4K resolution at 240Hz over HDMI

### M2 Max

Simultaneously supports full native resolution on the built-in display at 1 billion colors and:

Up to four external displays: Up to three external displays with 6K resolution at 60Hz over Thunderbolt and one external display with up to 4K resolution at 144Hz over HDMI

Up to three external displays: Up to two external displays with 6K resolution at 60Hz over Thunderbolt and one external display with up to 8K resolution at 60Hz or one external display with 4K resolution at 240Hz over HDMI

### Thunderbolt 4 digital video output

Support for native DisplayPort output over USB-C

### HDMI digital video output

Support for one display with up to 8K resolution at 60Hz or 4K resolution at 240Hz

## Video Playback

Supported formats include HEVC, H.264, and ProRes

HDR with Dolby Vision, HDR10, and HLG

## Audio Playback

Supported formats include AAC, MP3, Apple Lossless, FLAC, Dolby Digital, Dolby Digital Plus, and Dolby Atmos

## Keyboard and Trackpad

### Backlit Magic Keyboard with:

78 (U.S.) or 79 (ISO) keys including 12 full-height function keys and 4 arrow keys in an inverted-T arrangement

Touch ID

Ambient light sensor

Force Touch trackpad for precise cursor control and pressure-sensing capabilities; enables Force clicks, accelerators, pressure-sensitive drawing, and Multi-Touch gestures



Force Touch trackpad

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## Wireless

### Wi-Fi

Wi-Fi 6E (802.11ax)<sup>5</sup>

### Bluetooth

Bluetooth 5.3

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## Camera

1080p FaceTime HD camera

Advanced image signal processor with computational video

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## Audio

High-fidelity six-speaker sound system with force-cancelling woofers

Wide stereo sound

Support for Spatial Audio when playing music or video with Dolby Atmos on built-in speakers

Spatial Audio with dynamic head tracking when using AirPods (3rd generation), AirPods Pro, and AirPods Max

Studio-quality three-mic array with high signal-to-noise ratio and directional beamforming

3.5 mm headphone jack with advanced support for high-impedance headphones

HDMI port supports multichannel audio output

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## Operating Requirements

**Line voltage:** 100V to 240V AC

**Frequency:** 50Hz to 60Hz

**Operating temperature:** 50° to 95° F (10° to 35° C)

**Storage temperature:** -13° to 113° F (-25° to 45° C)

**Relative humidity:** 0% to 90% noncondensing

**Operating altitude:** tested up to 10,000 feet

**Maximum storage altitude:** 15,000 feet

**Maximum shipping altitude:** 35,000 feet

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## Size and Weight

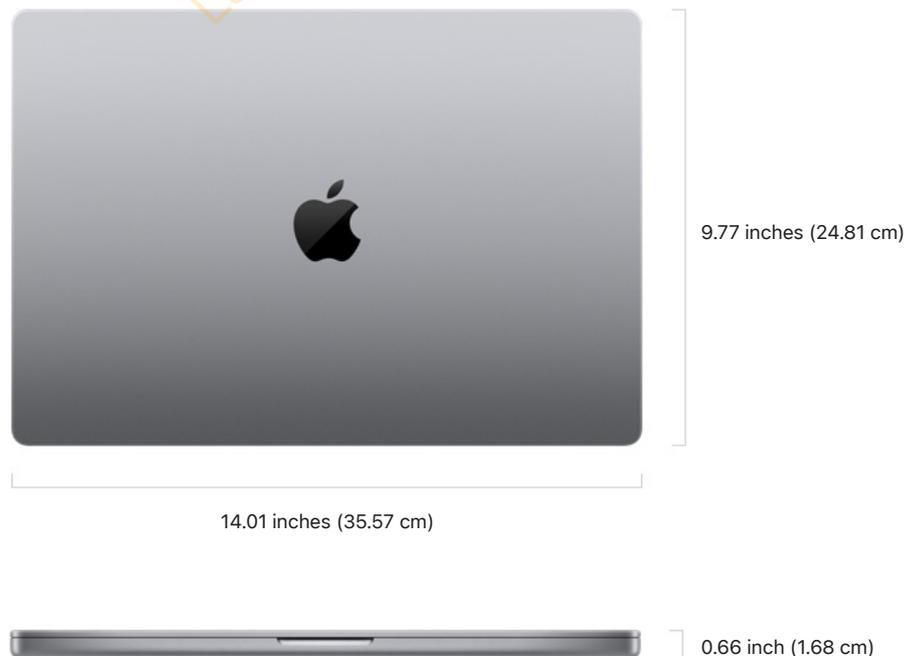
**Height:** 0.66 inch (1.68 cm)

**Width:** 14.01 inches (35.57 cm)

**Depth:** 9.77 inches (24.81 cm)

**Weight (M2 Pro):** 4.7 pounds (2.15 kg)<sup>6</sup>

**Weight (M2 Max):** 4.8 pounds (2.16 kg)<sup>6</sup>



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## Operating System

macOS

macOS is the most advanced desktop operating system in the world. macOS Ventura makes the things you do most on Mac even better, so you can work smarter, play harder, and go further.

[Learn more >](#)

## Accessibility

Accessibility features help people with disabilities get the most out of their new MacBook Pro. With built-in support for vision, hearing, mobility, and learning, you can create and do amazing things.

[Learn more >](#)

### Features include:

Voice Control

Increase Contrast

Switch Control

VoiceOver

Reduce Motion

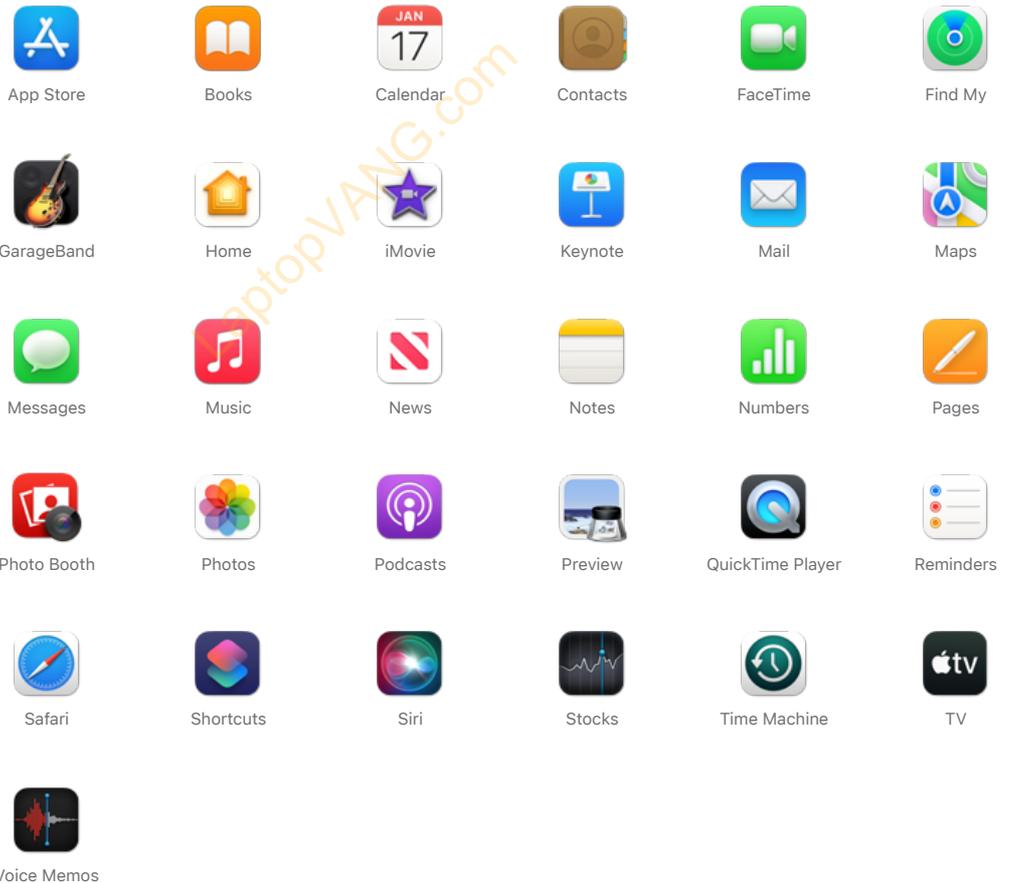
Closed Captions

Zoom

Siri and Dictation

Text to Speech

## Built-in Apps<sup>7</sup>



## In the Box

- 16-inch MacBook Pro
- 140W USB-C Power Adapter
- USB-C to MagSafe 3 Cable (2 m)

