

MacBook Pro (15-inch, 2019) – Technical Specifications



Touch Bar

- Touch Bar with integrated Touch ID sensor

Finish

- Silver
- Space Gray

Display

- Retina display
- 15.4-inch (diagonal) LED-backlit display with IPS technology; 2880-by-1800 native resolution at 220 pixels per inch with support for millions of colors
- Supported scaled resolutions:
 - 1920 by 1200
 - 1680 by 1050
 - 1280 by 800
 - 1024 by 640
- 500 nits brightness
- Wide color (P3)
- True Tone technology

Processor

- **2.6GHz**
2.6GHz 6-core Intel Core i7, Turbo Boost up to 4.5GHz, with 12MB shared L3 cache
Configurable to 2.4GHz 8-core Intel Core i9, Turbo Boost up to 5.0GHz, with 16MB shared L3 cache
- **2.3GHz**
2.3GHz 8-core Intel Core i9, Turbo Boost up to 4.8GHz, with 16MB shared L3 cache
Configurable to 2.4GHz 8-core Intel Core i9, Turbo Boost up to 5.0GHz, with 16MB shared L3 cache

Storage¹

- **256GB**
256GB SSD
Configurable to 512GB, 1TB, 2TB, or 4TB SSD
- **512GB**
512GB SSD
Configurable to 1TB, 2TB, or 4TB SSD

Memory

- 16GB of 2400MHz DDR4 onboard memory
Configurable to 32GB of memory

Graphics

- **2.6GHz**
Radeon Pro 555X with 4GB of GDDR5 memory and automatic graphics switching
Intel UHD Graphics 630
Configurable to Radeon Pro 560X with 4GB of GDDR5 memory
- **2.3GHz**
Radeon Pro 560X with 4GB of GDDR5 memory and automatic graphics switching
Intel UHD Graphics 630
Configurable to Radeon Pro Vega 16 with 4GB of HBM2 memory or Radeon Pro Vega 20 with 4GB of HBM2 memory

Charging and Expansion

Four Thunderbolt 3 (USB-C) ports with support for:

- Charging
- DisplayPort

- Thunderbolt (up to 40Gb/s)
- USB 3.1 Gen 2 (up to 10Gb/s)

Keyboard and Trackpad

- **Full-size backlit keyboard with:**
 - 64 (U.S.) or 65 (ISO) keys including 4 arrow keys
 - Touch Bar with integrated Touch ID sensor
 - 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

Wireless

- **Wi-Fi**
802.11ac Wi-Fi wireless networking; IEEE 802.11a/b/g/n compatible
- **Bluetooth**
Bluetooth 5.0 wireless technology

Camera

- 720p FaceTime HD camera

Video Support

Simultaneously supports full native resolution on the built-in display at millions of colors and:

- Up to two displays with 5120-by-2880 resolution at 60Hz at over a billion colors
- Up to four displays with 4096-by-2304 resolution at 60Hz at over a billion colors

Thunderbolt 3 digital video output

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

Audio

- Stereo speakers with high dynamic range
- Three microphones
- 3.5 mm headphone jack

Battery and Power²

- Up to 10 hours wireless web
- Up to 10 hours Apple TV app video playback
- Up to 30 days of standby time
- Built-in 83.6-watt-hour lithium-polymer battery
- 87W USB-C Power Adapter

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

Size and Weight

- Height: 0.61 inch (1.55 cm)
- Width: 13.75 inches (34.93 cm)
- Depth: 9.48 inches (24.07 cm)
- Weight: 4.02 pounds (1.83 kg)³

Operating System

macOS

macOS is the operating system that powers every Mac. macOS Catalina gives you more of everything you love about Mac. So you can take everything you do above and beyond. Learn more about latest operating system

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 about Accessibility

Features include:

- Voice Control
- VoiceOver
- Zoom
- Increase Contrast

- Reduce Motion
- Siri and Dictation
- Switch Control
- Closed Captions
- Text to Speech

Built-in Apps⁴

- Photos
- iMovie
- GarageBand
- Pages
- Numbers
- Keynote
- Siri
- Safari
- Mail
- FaceTime
- Messages
- Maps
- News
- Stocks
- Home
- Voice Memos
- Notes
- Calendar
- Contacts
- Reminders
- Photo Booth
- Preview
- Music
- Podcasts
- TV
- Books
- App Store
- Time Machine
- Find My
- QuickTime Player

In the Box

- 15-inch MacBook Pro
- 87W USB-C Power Adapter
- USB-C Charge Cable (2 m)

Configure to Order

Configure your MacBook Pro with these options, only at apple.com:

- 2.4GHz 8-core Intel Core i9, Turbo Boost up to 5.0GHz, with 16MB shared L3 cache
- 32GB of 2400MHz DDR4 memory
- Radeon Pro 560X with 4GB of GDDR5 memory
- Radeon Pro Vega 16 with 4GB of HBM2 memory
- Radeon Pro Vega 20 with 4GB of HBM2 memory
- 512GB, 1TB, 2TB, or 4TB SSD

MacBook Pro and the Environment

Apple takes a complete product life cycle approach to determining our environmental impact. Learn more about MacBook Pro and the Environment

MacBook Pro is designed with the following features to reduce its environmental impact:

- Mercury-free LED-backlit display
- Arsenic-free display glass
- BFR-free
- PVC-free⁵
- Beryllium-free
- Highly recyclable aluminum enclosure
- Meets ENERGY STAR requirements
- Rated EPEAT Gold⁶

Apple and the Environment

Read our Product Environmental Reports for detailed information on the environmental performance of every Apple product.

Accessories

Mac Software

- Final Cut Pro X
- Logic Pro X

Displays and Adapters

- LG UltraFine 4K Display
- LG UltraFine 5K Display
- Thunderbolt 3 (USB-C) to Thunderbolt 2 Adapter
- USB-C to USB Adapter
- USB-C to SD Card Reader
- USB-C Digital AV Multiport Adapter
- USB-C VGA Multiport Adapter
- USB-C to Gigabit Ethernet Adapter

Other Accessories

- USB-C to Lightning Cable
- USB-C Charge Cable
- 87W USB-C Power Adapter
- 15-inch MacBook Pro Leather Sleeve
- Blackmagic eGPU
- Blackmagic eGPU Pro
- Magic Keyboard
- Magic Keyboard with Numeric Keypad
- Magic Trackpad 2
- Magic Mouse 2
- AppleCare+ for Mac

Acoustic Performance

Declared noise emission values in accordance with ECMA-109

	Sound Power Level $L_{WA,m}$ (B)	Sound Pressure Level Operator Position $L_{pA,m}$ (dB)
Idle	1.7 ($K_v = 0.3$)	8
Wireless web	1.7 ($K_v = 0.3$)	8

1. $L_{WA,m}$ is the mean A-weighted sound power level, rounded to the nearest 0.1 B.
2. $L_{pA,m}$ is the mean A-weighted sound pressure level measured at operator position (rounded to the nearest 1 dB).
3. 1 B (bel) = 10 dB (decibel)
4. K_v is the statistical adder for computing upper-limit of A-weighted sound power level.
5. The quantity, $L_{WA,c}$ (formerly called $L_{WA,d}$) may be computed from the sum of $L_{WA,m}$ and K_v .
6. The Wireless web test browses 25 popular websites.
7. Configuration tested: 2.3GHz 8-core Intel Core i9 processor, 16GB memory, 512GB storage, Radeon Pro 560X with 4GB of GDDR5 memory.

1. 1GB = 1 billion bytes and 1TB = 1 trillion bytes; actual formatted capacity less.
2. Testing conducted by Apple in June 2019 using preproduction 1.4GHz quad-core Intel Core i5-based 13-inch MacBook Pro systems with 8GB of RAM and 256GB SSD. Testing conducted by Apple in April 2019 using preproduction 2.4GHz quad-core Intel Core i5-based 13-inch MacBook Pro systems with 8GB of RAM and 512GB SSD; and preproduction 2.3GHz 8-core Intel Core i9-based 15-inch MacBook Pro systems with 16GB of RAM and 512GB SSD. The wireless web test measures battery life by wirelessly browsing 25 popular websites with display brightness set to 12 clicks from bottom or 75%. The iTunes movie playback test measures battery life by playing back HD 1080p content with display brightness set to 12 clicks from bottom or 75%. The standby test measures battery life by allowing a system, connected to a wireless network and signed in to an iCloud account, to enter standby mode with Safari and Mail applications launched and all system settings left at default. Battery life varies by use and configuration. See www.apple.com/batteries for more information.
3. Weight varies by configuration and manufacturing process.
4. 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.
5. PVC-free AC power cord available in all regions except India and South Korea.
6. MacBook Pro achieved a Gold rating from EPEAT in the U.S. and Canada.