HW/SW Upgrades

PMUG General Meeting, March 16, 2024

Overview

- When to do Hardware upgrades
- What to consider for your next Generation Hardware
- Best way to do Software updates
- When to do Software updates

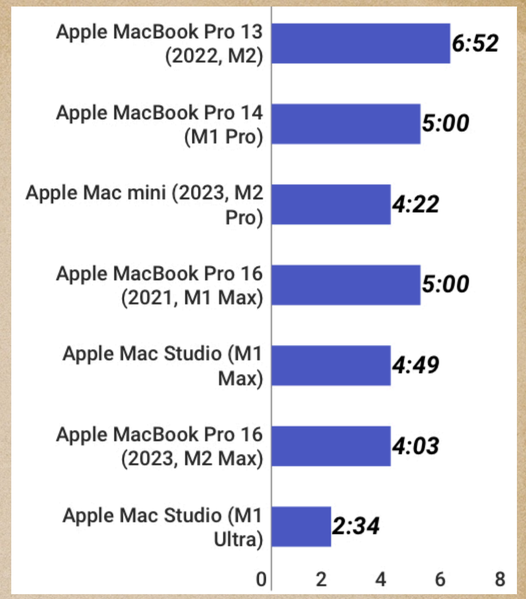
Hardware Upgrades

- Hardware upgrades:
  - Computer (CPU/GPU, RAM, Internal Storage, Ports)
  - NOTE: Apple M series are CPU, GPU & Unified RAM on SoC
  - External Disks (SSD or Hard Disk)
  - Monitor (monitor vs TV)

Computer Upgrades

- When it breaks…
- When it no longer does what you want
- When it is no longer supported by the latest OS Release
- When you get bored with it and want the latest and greatest

Processor Considerations



- ALL of the M series processors (SoC) are FAST
- Basic, Pro, Max & Ultra are the names of M series SoC
- Pro is ~15% faster than Basic, Max ~35% is faster than Pro, Ultra is ~80% faster than Max (Geekbench 6 multicore M3 test)
- Processor can have different models with different # of Cores

Processor Considerations

- In general, Apple SoCs have CPU & GPU Cores
- CPU cores are either efficiency or power cores, both in each SoC
- CPU for general processing, GPU for graphics processing
- The greater number of cores, the faster the processing

Processor Considerations

- M basic is fine for surfing the web, email, texting, writing
- M Pro should be considered for Photo Editing
- M Max or Ultra should be considered for Video editing

RAM Considerations

- RAM requirements are increasing
- All data is getting larger
- iPhone Pro now taking 48MB Photos
- iPhone Pro now taking 4K videos at 60fps

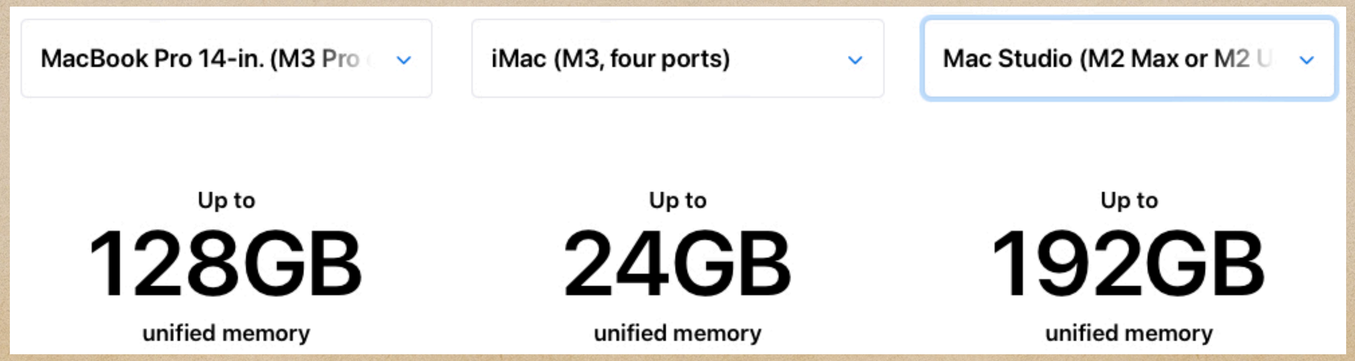
A minute of video will be approximately:
• 45 MB with 720p HD at 30 fps (space saver)
• 65 MB with 1080p HD at 30 fps (default)
• 100 MB with 1080p HD at 60 fps (smoother)
• 150 MB with 4K at 24 fps (film style)
• 190 MB with 4K at 30 fps (higher resolution)
• 440 MB with 4K at 60 fps (higher resolution, smoother)

RAM Considerations

- Apple sells entry models with ONLY 8GB RAM and it can NEVER be increased
- 8GB is BARE MINIMUM!!! NOT recommended!!!
- 16GB is the current Minimum recommended for Email & Browsing
- 32GB is the recommended for Photo Processing

RAM Considerations

- 64GB recommended for Video Processing
- iMac is really not the best choice for Photo or Video Processing
- Consider how much RAM you can now put in an M series computer



Storage Considerations

- Fastest storage is now SSD which is the internal storage for ALL Apple Products
- Internal SSD Size depends on two things: 1) Needs, and 2) Money
- Never get a smaller internal SSD than what you currently have
- You can ALWAYS add an external SSD connected to Thunderbolt port for fast storage

Port Considerations

- Ports fixed by model
- Can not add or modify ports
- Usually choice of either 2, 3 or 4 USB-C/Thunderbolt ports
- May or may not have an HDMI port for external monitor
- Card slot??

External Disks

- Required for Time Machine Backups
- Get two if needed for redundancy & off site backups
- USB-C fast enough for most users, Thunderbolt is faster
- SSD: 1TB for $100, 4TB for $300-400 (Apple charges $400 for 2TB); Spinning hard drive 4TB for $100 but slower than SSD
- Time Machine should be twice what internal SSD is in size

Monitors

- Most External Monitors outlast the computer they are attached to
- Upgrade when you want more “screen resolution” or brightness
- 2K monitors are out, 4K (USB-C or HDMI) & 5K (USB-C or Thunderbolt) are available
- 6K & 8K TVs (USB-C or Thunderbolt) are out there

Monitors

- Be aware of your new computer output ports (HDMI supports 4K Max) and the monitors ports
- NOTE: the higher the pixel resolutions, the larger the screen needs to be to see anything!! (14" MBP display is 3024x1964, BUT, set to 1920x1200 to see the words)

How to Configure

- First, choose the SoC (Basic, Pro, Max or Ultra) you need for your computing requirements
- Second, get as much RAM as you can afford
- Third, choose the internal storage (at least as big as current)
- Fourth, choose the external monitor if needed

Buying Older/Used Computers

- Great if limited by budget
- Price per performance is less (pay less $, get less oomph)
- Shorter life span
- If used, was it abused
- Apple offers “Remanufactured” computers at times

Laptop	Price per
MacBook Pro (M3 Max)	$0.14
MacBook Pro (M3 Pro)	$0.13
MacBook Pro (M3)	$0.12
MacBook Pro (M2 Max)	$0.20
MacBook Pro (M2 Pro)	$0.13
MacBook Pro (M2)	$0.11
MacBook Air (M2)	$0.09
MacBook Pro (M1 Max)	$0.13
MacBook Pro (M1 Pro)	$0.11
MacBook Pro (M1)	$0.09

Software Upgrades

- Why should you??
- First & foremost: BUG FIXES & Closing Virus entry points
- Second, new features and enhancements
- Third, able to communicate with others

Software Upgrades

- Recommended: Turn on Automatic Software Updates
- Mac: System Settings>General>Software Updates>Automatic Updates>On
- iOS: Settings>General>Software Updates>Automatic Updates>On

Software Upgrades

- iPhone Watch App>General>Software Update>Automatic Updates>On
- Apple TV>Settings>System>Software Updates>Automatically Update>On
- Happens at night, plugged into power, & connected to WiFi

Software Upgrades

- IF you don't do Automatic updates, when should you update?
- Eager: in the first week of new release
- Most: after the first ".01" release comes out
- Cautious: after the first ".1" release comes out
- Remember: The Hackers often have Zero Day Exploits!!