Mac Laptop

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Purpose

This is to help provide information with regards to what should be purchased.

Configuration

Macbook Pro

For a 3 to 5 year run, we recommend the following configuration:

- RAM: 16 Gigs
- Drive: 512 Gigs

USE CASE: Standard staff and faculty use

Macbook Air

For a 3 to 5 year run, we recommend the following:

- RAM: 8 Gigs (minimum) to 16 Gigs
- Drive: 512 Gigs

NOTE: Air models only come with 2 USB-C ports.

USE CASE: note taking and light video conferencing.

If you are planning on doing heavy computation or run code for more than a few hours at a time, please do not pick a Macbook Air as cooling is insufficient to handle heavy use. Please be aware that some engineering software such as Solidworks used by Mechanical engineering cannot run on MacOS without the use of a virtual machine or bootcamp and the Macbook Air does not have sufficient hardware to do this.
Reasons for the recommendations

The reason for the 512 Gig drive space, we recommend this for the long term, especially if using Apple Mail or a Mail client on the laptop for disk space concerns.

The recommendation of the Flash Storage allows for faster application startup and saving, but also allow for enough space. 256 Gig will not be sufficient for long term usage.

Minimum specs for RAM given on the Apple website for Mojave/Catalina is for running the base operating system only. Additional RAM is needed for other applications. Example: Office 2019 for Mac requires an additional 4GB of RAM.

Fusion Drives

At the moment, ECI cannot recommend Fusion Drives as the latest version of the Apple File Provisioning System (AFPS) has been reported as not properly supporting older Fusion Drive as a boot drive and could cause problems. Newer Fusion drives are supported by AFPS but serious issues involving reliability and heat handling have been reported.

If you still wish to get a Fusion Drive, it is best to have it supported by Apple with any issues regarding the drive or if the system needs to be rebuilt.

Turbo Boost

Please be aware that most macs have two specs for processors, the "bases spec" the machine usually runs at and the "Turbo Boost up to" spec. Turbo Boost trades number of cores being used for increased clock speed to deliver short bursts of increased processing power, such as when opening files or webpages. Due to increased voltage and hence increased heat generation, turbo boost cannot be used for long periods of time. Macs in standard laptop configuration will throttle down processing speed automatically after a few seconds to avoid damaging the CPU. Please keep this in mind when deciding which processor to purchase.

Manually disabling throttling or bootcamping the machine to run windows and failing to set the max processor speed as the "base spec" can result in damage to the CPU and is not recommended. Any type of overclock, either command line based or via third party program, to continuously run at the "Turbo Boost" speed, will **void the AppleCare Warranty for the entire laptop.**

AppleCare Warranty

At this time, it is **highly** recommended that you purchase the system with AppleCare Warranty for 3 years at the purchase of the hardware.

AppleCare has to be registered at purchase of the hardware as it is registered with the serial number.

If you get the AppleCare Coverage after purchase, the device needs to be certified first at the UCSB Bookstore or at a certified Apple Provider before the AppleCare can be applied.

Why have AppleCare Warranty

Due to the nature of Apple Devices, any hardware related issue that may arise is covered by Apple to repair or replace the unit.
ECI cannot repair Apple devices and it is faster to have AppleCare handle the issue.

Recommended Peripherals

Additional Power Adapter

We recommend having 2 more power adapters should be purchased. One for Home and one for the Office. The one that comes with the Laptop being part of your ‘travel bag’.

Video Adapters

Thunderbolt to VGA Adapter

If you have a Pre-2016 Macbook Pro, we recommend that you have the Thunderbolt to VGA adapter on hand for some of the various conference rooms if you need to display Video from your laptop.

Thunderbolt to HDMI Adapter

If you have a Macbook Air or a Pre-2016 Macbook Pro 13”, we recommend you have the Thunderbolt to HDMI Adapter on hand for some of the various conference rooms that have HDMI connections for displaying Video and playing Audio.

USB-C Digital AV Multiport Adapter

If you have the most current Macbook Pro (2016-Present), which uses USB-C, you should have the USB-C Digital AV Multiport Adapter for use of conference rooms using HDMI connections.

USB-C VGA Multiport Adapter

If you have the most current Macbook Pro (2016-Present), which uses USB-C, you should have the USB-C VGA Multiport Adapter for use of conference rooms using VGA connections.

Other Adapters

Thunderbolt 3 to Thunderbolt 2 Adapter

If you wish to keep your older Macbook Adapters, Apple sells a Thunderbolt 3 (USB-C) to Thunderbolt 2 Adapter.

Amazon also sells a USB-C to Mini-DisplayPort Adapters, although make sure it is USB-C (Male Connector) to Mini-DisplayPort (Female Connector), as the search on Amazon will show other items that may not be what you are looking for.

Ethernet to USB-C Adapter

If you only need an Ethernet Adapter, you can use either Belkin USB-C to Gigabit Ethernet Adapter - ~$35
AmazonBasics USB 3.1 type -C to Ethernet Adapter for Mac/PC - ~$18

USB-C to USB Adapter

For most of the current Macbook Pro (2016-Present), which uses USB-C, you may need USB-C to USB Adapter cable to hook up things such as:

- Non USB-C Flash Drives
- External USB Hard Drives
- Wireless Presenter
- USB Headset
- USB Devices in general

Port Replicators

Port Replicators are best for Office Situations where you plan on using the laptop as a workstation and would like to have all your peripherals be connected to the Macbook through 1 connection.

At the moment, some of the Port Replicators are not quite designed to support Dual Monitor setups. Please refer to the notes for more information with the respective docks.
We recommend the following Port Replicators:

**Belkin Thunderbolt 2 Express Dock**

The Belkin Thunderbolt 2 Express Dock ([http://www.belkin.com/us/F4U085-Belkin/p/P-F4U085/](http://www.belkin.com/us/F4U085-Belkin/p/P-F4U085/)) is what we have been recommending to Macbook Pro users that have the standard Thunderbolt 2 connector (Mini-displayport). This dock does require power but provides the following connectivity:

- Ethernet
- 3 USB 3.0 Connections
- Video
  - HDMI - Cannot be daisy-chained (IE: Using HDMI, you cannot connect the Thunderbolt to get another monitor)
  - Thunderbolt - Can only daisy-chain with thunderbolt monitors.

⚠️ The dock does not provide power to the Macbook for charging.

This means a power adapter connection is necessary.

**OWC USB-C Dock**


- Ethernet
- 5 USB 3.1 Connections
- 2 USB-C Connections (1 to the computer, 1 for addition items)
  - Computer USB-C Connection doubles also for Power charging for the Macbook Laptop.
- HDMI/Thunderbolt Video.
  - Note - The USB-C Dock only has 1 HDMI, the USB-C Dock mdp only has 1 Mini-displayport port.
  - May not support daisy-chaining monitors.

⚠️ This dock can charge the Macbook Pro (2016-Present via USB-C

The rough cost is ~$149.75

**OWC Thunderbolt 3 Dock**


- Ethernet
- 5 USB 3.1 Connections
- 2 USB-C connections (1 for the computer and 1 for a monitor)
  - Computer USB-C connection can charge laptops up to 60W.
- 1 Mini-displayport Connection
- SD Card Reader
- Headphone Connection

This dock will require a Mini-displayport to HDMI/DVI/VGA adapter and a USB-C to HDMI/DVI/VGA adapter to do a dual monitor output.

The rough cost is ~$289

**CalDigit Thunderbolt Station 3 Plus (TS3+)**

CalDigit provides a Thunderbolt Station 3 Plus Port Replicator

It has the following:

- Ethernet
- 2 Thunderbolt USB-C connections (In back)
- Audio In/Out on the front
- 1 USB 3.1 Connection in the front.
- 1 Displayport Connection
- 4 USB 3.1 Connections in the back
- 1 USB-C connection in back
- 1 USB-C connection in front
- SD Card Reader in the front

The TS3+ will require a Displayport to HDMI/DVI/VGA adapter or just direct to Displayport cable and a USB-C to HDMI/DVI/VGA adapter for dual monitor output.

The TS3 cost roughly ~$299.00
**Dual Monitor Support**

Due to how Apple has designed their laptops with regards to video, there are limitations with having dual monitor support through the Port Replicator method.

At this time, you may have to consider a USB-C monitor.

Apple is no longer making the Thunderbolt Display Monitors, so the options are limited in this venue.

Also, there may be limitations based on the model of the Macbook Pro (Post 2016) on the number of monitors it can support. Please refer to Apple on these limitations.

ECI has not had a chance to investigate multi-monitor setups for Macbooks at this time.