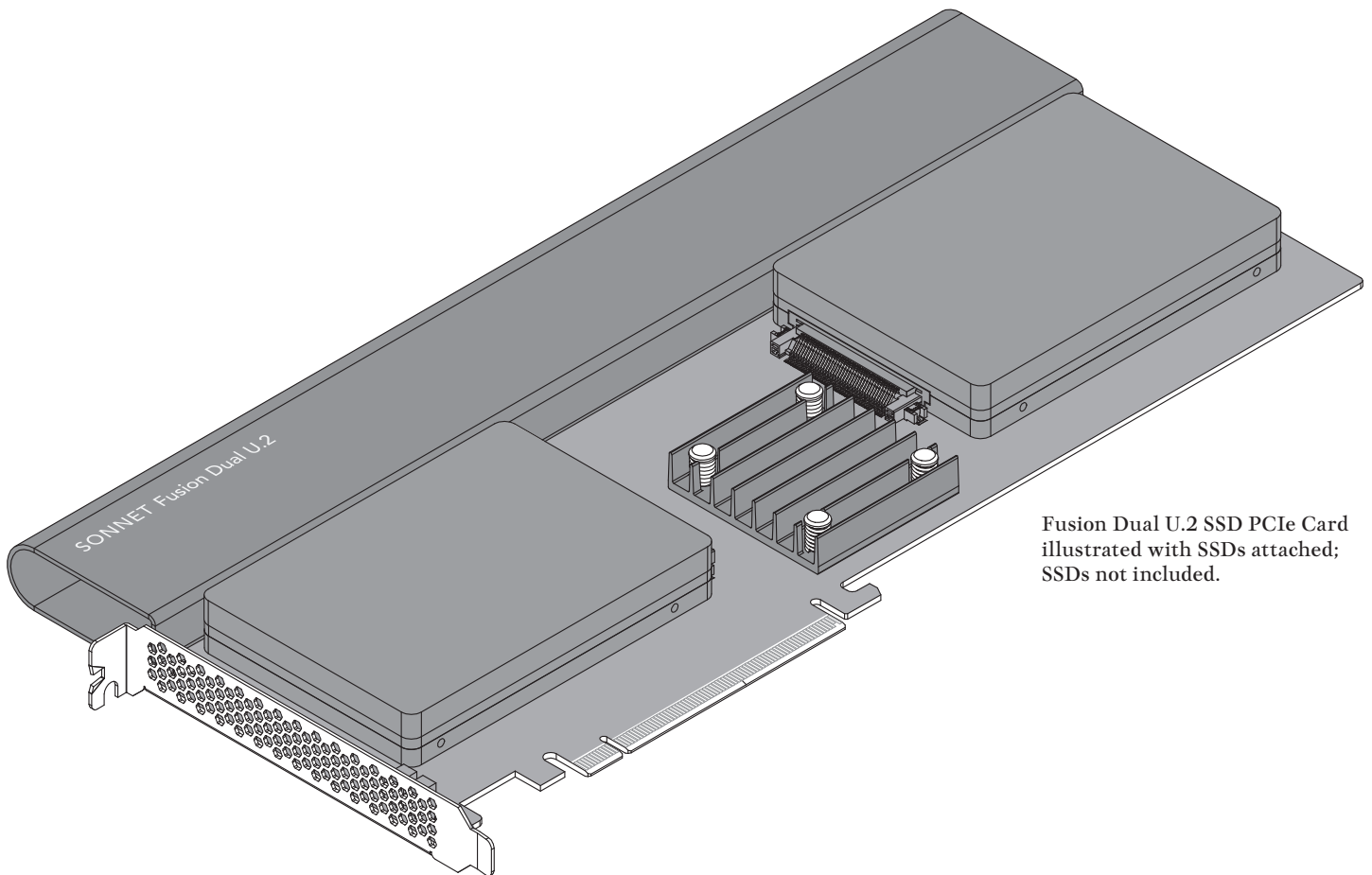


Quick Start Guide

for Fusion™ Dual U.2 SSD PCIe Card



Fusion Dual U.2 SSD PCIe Card illustrated with SSDs attached; SSDs not included.



Support Note: This document was up to date at the time of printing. However, changes to the hardware or software may have occurred since then. Please check the Sonnet website for the latest documentation.

1. Go to www.sonnettech.com/support/kb/kb.php
2. Navigate to and click the Fusion Dual U.2 SSD PCIe Card link.
3. Click the Manual link.
4. Click the Fusion Dual U.2 SSD PCIe Card Quick Start Guide [English] link, and then check the Document Version information. If the version listed is later than this document (**revision F**), click the Download Now button for the latest version.

PCI EXPRESS®



For
Windows



SONNETTECH®

Introduction, Package Contents, Compatibility Information

Congratulations on your purchase! Fusion™ Dual U.2 SSD PCIe Card provides a convenient way to install one or two U.2 NVMe SSDs into a single PCIe card slot.

You Should Have

The following items should be included in your product package:

- One Fusion Dual U.2 SSD PCIe Card
- Eight SSD mounting screws
- Quick Start Guide

The following items are required for installation:

- Medium Phillips screwdriver
- Torx T8 screwdriver or key (only needed when removing the top extension bracket)

Mac® Compatibility

- Mac Pro® 14,8 (2023): macOS 13 – macOS 15
- Mac Pro 7,1 (2019): macOS 10.15 – macOS 12*
- Mac Pro 5,1 (Mid 2010 & Mid 2012): macOS 10.13 – 10.14
- Many Gen 4 U.2 SSDs and some Gen 3 U.2 SSDs are not currently compatible with macOS. To view a list of compatible SSDs, please visit the Sonnet website at: https://www.sonnettech.com/support/downloads/manuals/U2_SSDs.pdf

Windows® Compatibility

- Computer with available full-length, full-height x16 PCIe slot (PCIe bifurcation not required)
- Windows 11, 11
- Windows Server 2019, 2016, 2012 R2

Linux® Compatibility

- Computer with available full-length, full-height x16 PCIe slot (PCIe bifurcation not required)
- Linux Kernel 5.4+
- Red Hat Enterprise Linux 8
- SUSE Linux Enterprise Server 15 SP2
- Ubuntu 20.04 LTS, 21.10

VMWare® Compatibility

- Computer with available full-length, full-height x16 PCIe slot (PCIe bifurcation not required)
- ESXi7

Thunderbolt Compatibility

- Mac (M series or Intel®) computer via a Thunderbolt to PCIe card expansion system with available full-length x16 PCIe slot
- Windows computer via a Thunderbolt to PCIe card expansion system with available full-length x16 PCIe slot
- Linux computer via a Thunderbolt to PCIe card expansion system with available full-length x16 PCIe slot

Intel® VROC Compatibility

- Switch is compatible with Intel VMD controllers

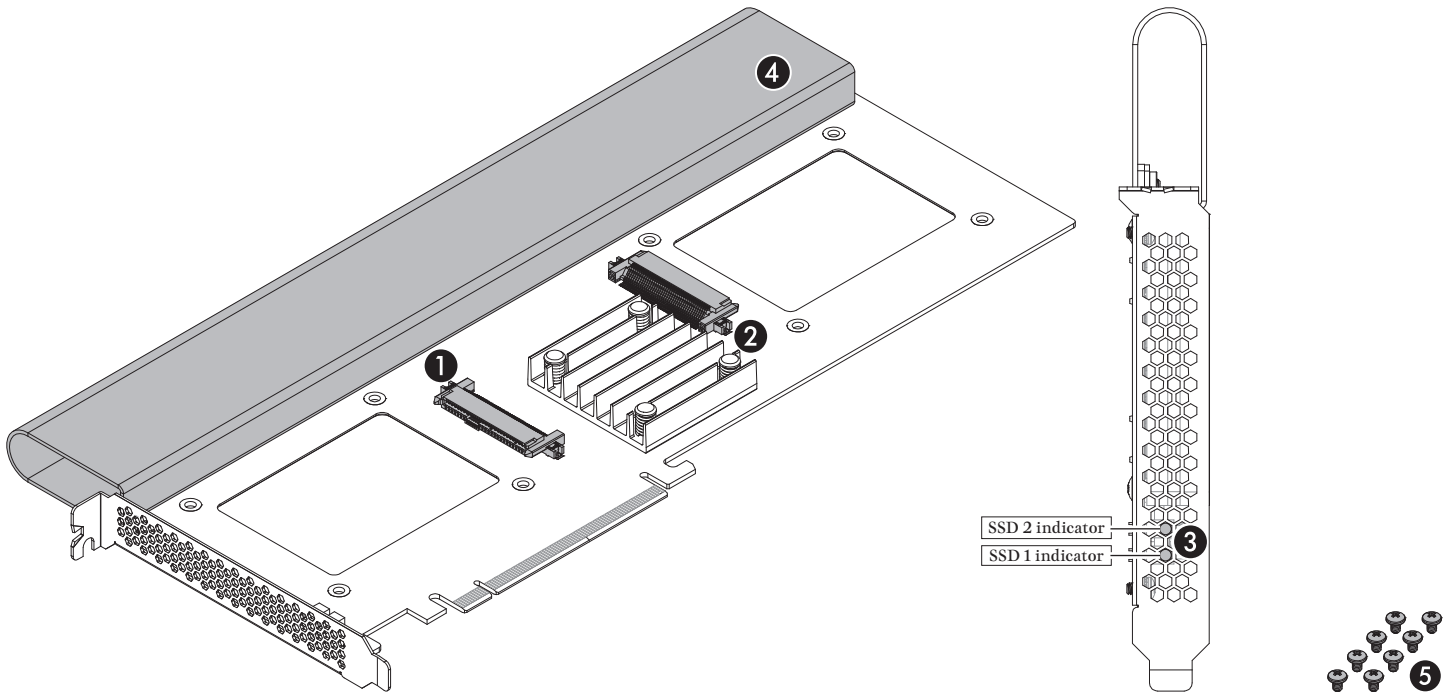
* NVMe SSDs installed in a PCIe card slot are not currently compatible in Mac Pro 7,1 with macOS 13, 14, or 15. Sonnet is working with Apple to resolve this issue.

U.2 SSD Compatibility

- U.2 (2.5-inch) NVMe PCIe SSDs**
- 2.5-inch SATA and SAS SSDs NOT supported
- Solidigm (formerly Intel) P5xxx Series, or Western Digital SN650 (but not the SN655) recommended.

** As of October 2024, the current maximum capacity of U.2 SSDs is 30.72TB. The current maximum capacity supported by macOS is 15.36TB. This product will support higher-capacity SSDs as they become available.

Card Description and Package Contents



1 – SSD Connector 1

Plug in a U.2 SSD to this connector.

2 – SSD Connector 2

Plug in a U.2 SSD to this connector.

3 – SSD Presence and Activity LEDs

The LEDs light steadily to indicate drives are attached and recognized, flash to indicate read and write activity, and remain off when no drive is attached. The top indicator is linked to SSD connector 2, while the bottom indicator is linked to SSD connector 1.

4 – Top Extension Bracket

Grasping this bracket enables easier installation of the card in a Mac Pro (2023 and 2019). In computers where there isn't enough room to install the card with it attached, the bracket may be removed; Torx T8 screwdriver or key required.

5 – SSD Mounting Screws

Eight screws are provided to secure U.2 SSDs to the card.

SSD Installation and Card Installation Steps



Support Notes: When handling computer products, you must take care to prevent components from being damaged by static electricity. Before opening your computer or removing parts from their packages, always ground yourself first by touching a metal part of the computer, such as a port access cover, and work in an area free of static electricity; avoid carpeted areas. Handle all electronic components by their edges, and avoid touching connector traces and component pins.

1. Remove and set aside the SSD connector covers (Figure 1).
2. Remove your SSDs from their packaging.

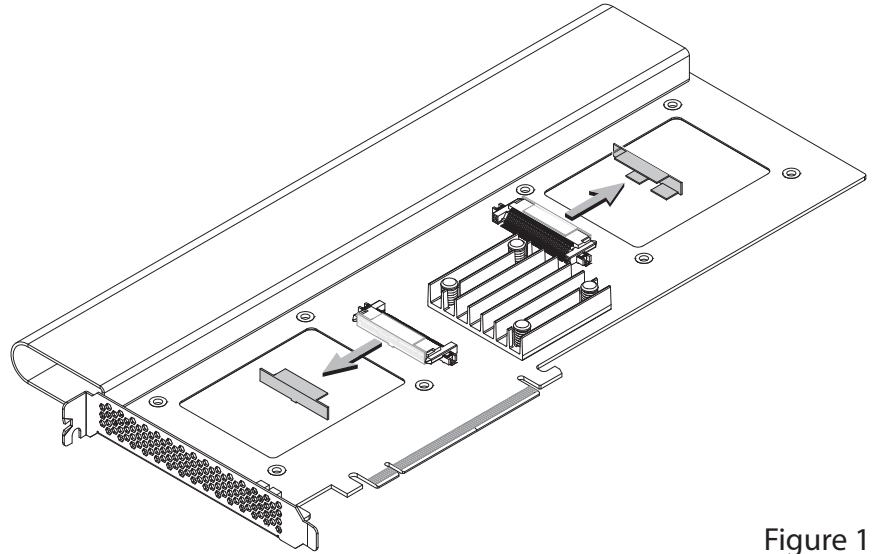


Figure 1

3. Place an SSD on top of the Fusion card with the SSD's and card's connectors aligned with each other (Figure 2).
4. Push the SSD's connector into the Fusion card's connector until the SSD is completely seated (Figure 2).

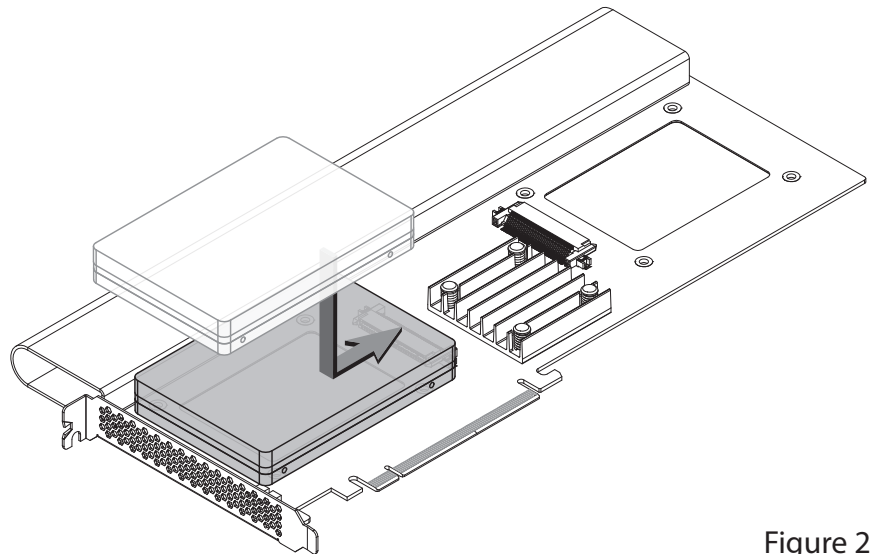


Figure 2

5. Holding the SSD firmly against the card, flip the Fusion card over again.
6. Using four of the eight screws provided with the card, secure the SSD to the Fusion card; do not overtighten the screws (Figure 3).

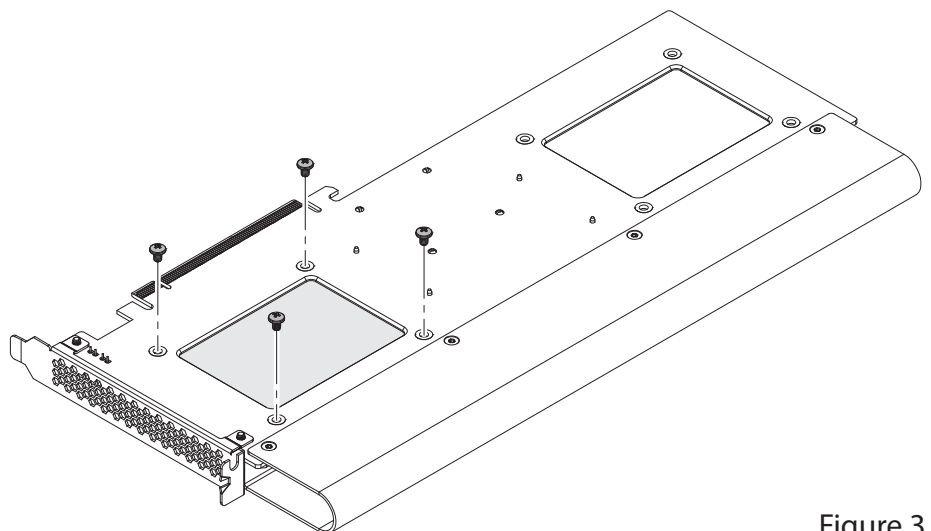


Figure 3

SSD Installation and Card Installation Steps

7. If you are installing only one SSD, skip to step 11. Otherwise, flip the Fusion card over again, and then place the second SSD on top of the card with the SSD's and card's connectors aligned with each other (Figure 4).
8. Push the SSD's connector into the Fusion card's connector until the SSD is completely seated (Figure 4).

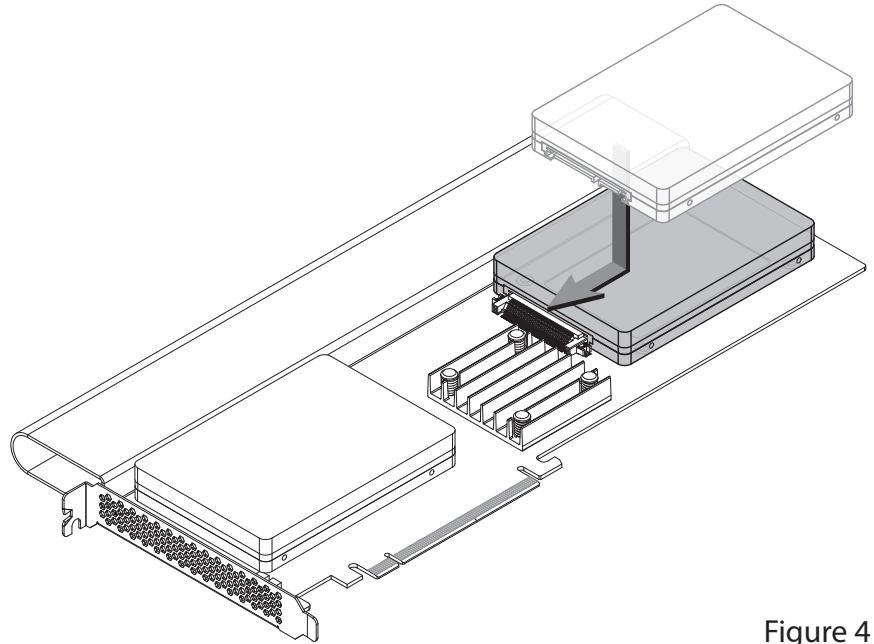


Figure 4

9. Holding the SSD firmly against the card, flip the Fusion card over again.
10. Using the remaining four screws, secure the SSD to the card; do not overtighten the screws (Figure 5).

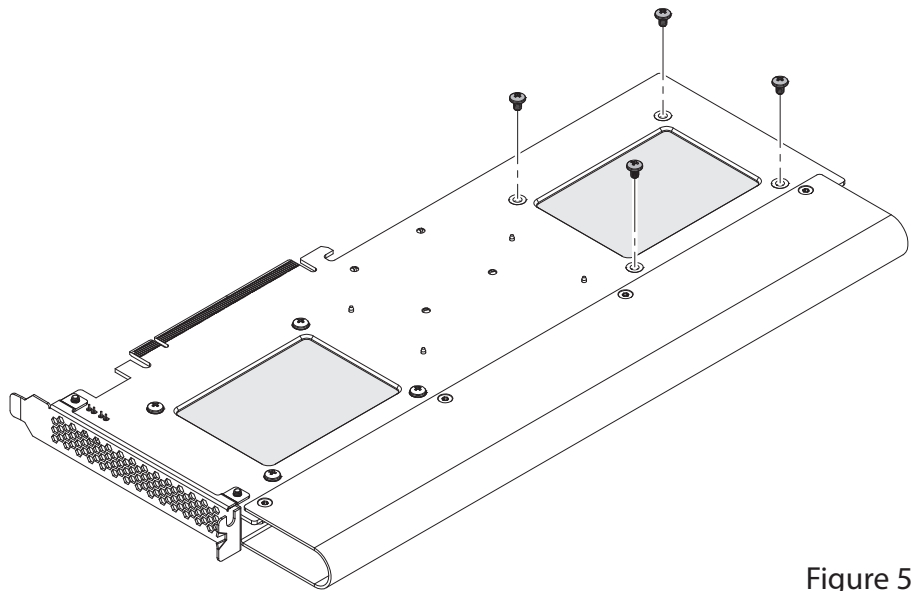


Figure 5

11. If the Fusion Dual U.2 SSD PCIe Card is too tall to fit in your computer or PCIe card expansion system without removing the top extension bracket, go to the next step. Otherwise, go to the next page; the card is ready for installation.
12. **Optional Step:** Using a Torx T8 screwdriver or key, remove and set aside the four screws securing the top extension bracket to the card. Remove the bracket from the card and set it aside (Figure 6); the card is ready for installation.

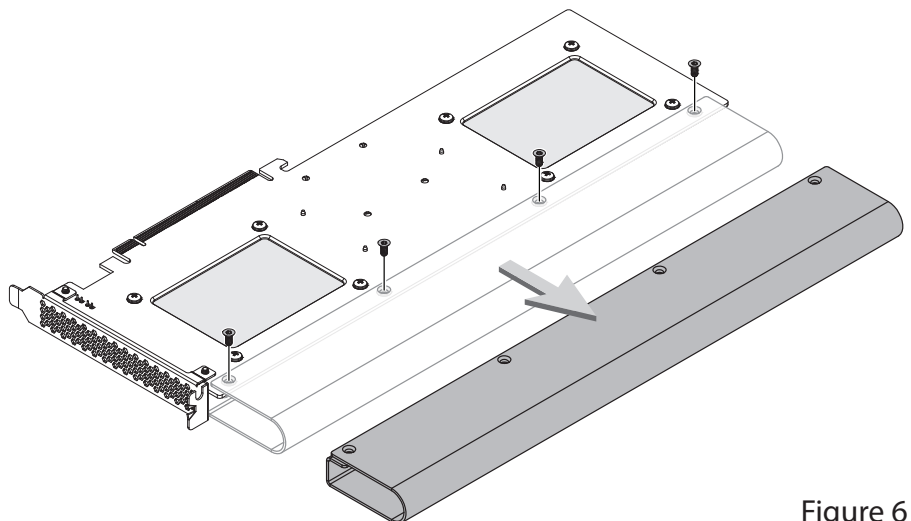


Figure 6

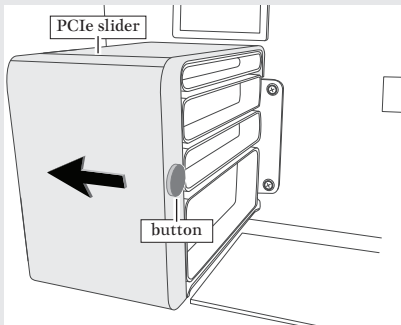
Card Installation Steps, SSD Formatting, and Booting Information

Card Installation Steps

1. Shut down your computer or Thunderbolt expansion system, disconnect its power cable, and then open it to access the expansion card area (PCI Express slots); refer to the users' manual for specific information.
2. Locate an available PCI Express card slot and remove its access cover if necessary. (If possible, leave open the slot next to the U.2 SSDs for better cooling):
 - Mac Pro (2023 and 2019) users may install the card into any available PCIe slot except slot 8.
 - Mac Pro (Mid 2012 and Mid 2010), Windows, and Linux computer users, and Thunderbolt expansion chassis users may install the card into an available PCIe slot. For Mac Pro users, better RAID performance will be achieved if you use the x16 slot just above the video card.



Support Note: If you have a Mac Pro 5,1 (Mid 2010 or 2012) computer, you will need to move what Apple refers to as the "PCIe slider" in order to install the Sonnet card. Simply press the indicated button and then move the slider to the left. After installing the card, move the slider back to the right.



3. Install the Fusion card with attached SSDs into the slot; make sure the card is firmly seated and secured (use the card slot's retaining latch if present).
4. Close your computer or expansion system, and then reconnect the computer's or expansion system's power cable and other cables if necessary.

Formatting and Configuring SSDs—macOS

Use Disk Utility (found in the Utilities folder within the Applications folder) to format installed SSDs. For step-by-step instructions on how to create RAID 0, RAID 1, or concatenated sets with installed SSDs, open Disk Utility, click Help and then select Disk Utility Help. In the *Disk Utility User Guide* window, type "create a disk set" and then press return. Click "Create a disk set using Disk Utility on Mac" to read the directions.

Formatting and Configuring SSDs—Windows

If you intend to format SSDs installed on the Sonnet card using Windows drive formatting tools, you may use either Disk Management or Storage Spaces.

Basic RAID Configuration Steps for Windows

Assuming you have installed two SSDs, you may follow these instructions to format them into a RAID array (Storage Space).

1. Go to the taskbar, type Storage Spaces in the search box, and then select Storage Spaces from the search results list.
2. In the *Storage Spaces* window, click Create a new pool and storage space.
3. Click the check boxes next to the SSDs you want to add to the new storage space (RAID volume), and then click Create pool. Be very careful not to select a drive you don't want to include, and note that all data on the SSDs you include in a Storage Space will be erased.
4. Give the "drive" a name and letter, and then choose a file system.
5. From the Resiliency type drop-down, select Simple (RAID 0) or Two-way mirror (RAID 1).
6. Depending on the Resiliency type you chose, the wizard will set the maximum available disk capacity. If necessary, you can also enter the maximum size for the storage space. Click Create storage space to complete the formatting and configuration; your SSDs are ready to use.

Formatting and Configuring SSDs—Linux

Use the tools or utilities you would normally use to format and configure internal drives.

Booting From Attached SSDs

macOS:

Fusion Dual U.2 SSD PCIe Card supports booting from individual (non-RAIDed) SSDs when the card is installed in Mac Pro 14,8, 7,1, and 5.1 computers, and Thunderbolt-to-PCIe card expansion systems. Please note that in some cases it may be necessary for you to hold the *option* key during a start, and then select the startup disk attached to the Sonnet card.

If the Sonnet card is installed in a Thunderbolt expansion system and you are using a Mac with the Apple T2 Security Chip, then you must enable External Boot in the Startup Security Utility.

Windows and Linux:

Fusion Dual U.2 SSD PCIe Card supports booting from a single, non-RAIDed SSD *only* in computers with UEFI.

Support Information

Contacting Customer Service

The Sonnet Web site (www.sonnettech.com) has the most current support information and technical updates. Before contacting Customer Service, please check our Web site for the latest updates and online support files.

Email support requests generally receive the fastest responses, and are usually processed within a 24-hour period during normal business hours, excluding holidays. When you contact Customer Service, have the following information available:

- Product name
- SSD model(s)
- Computer model
- OS version
- A System Report (macOS), or a Microsoft System Information MSINFO32 (Windows) report (Windows), along with a description of the issue(s) you are encountering with your device

If further assistance is needed, please contact **Sonnet Customer Service** at:

E-mail: support@sonnettech.com

Tel: 1-949-472-2772

(Monday–Friday, 9 a.m.–5 p.m. Pacific Time, excluding holidays)

Japan Customers

Contact Sonnet Customer Service Japan at:

E-mail: jp.support@sonnettech.com

