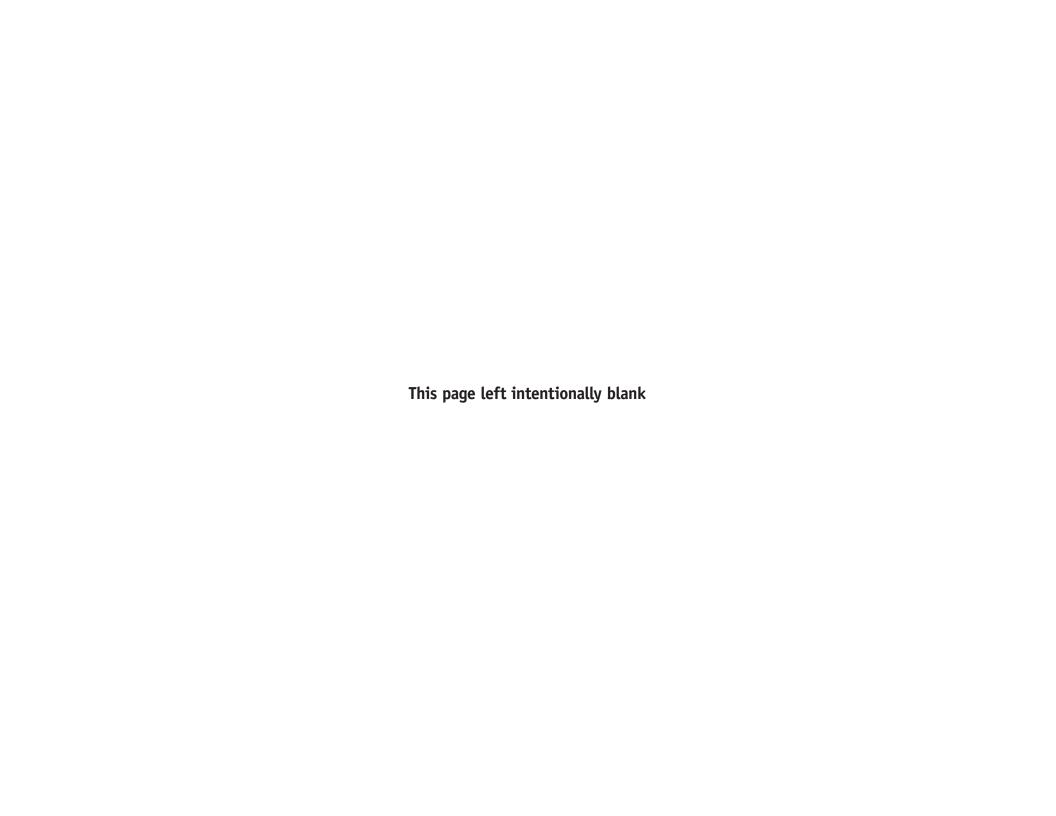


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Chapter 1 – Introduction and System Requirements

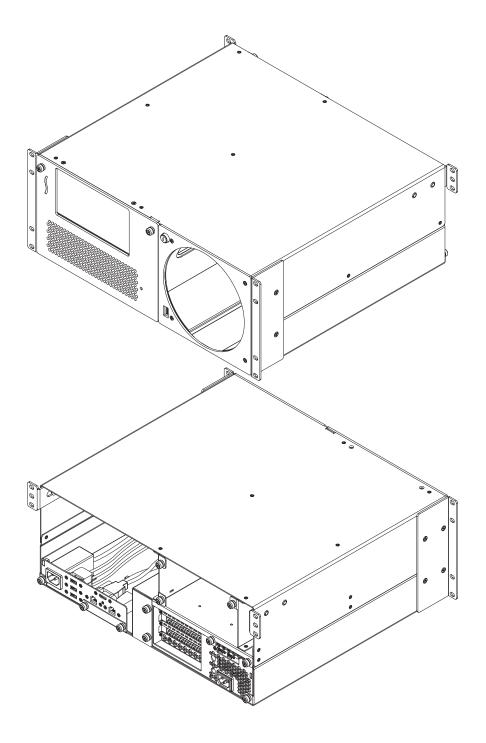
Congratulations on your purchase! The xMac Pro Server is a Thunderbolt 2-to-PCIe card expansion system and 4U rackmount enclosure for the Mac Pro with Thunderbolt 2 ports; with its three PCIe slots, and space to install either mobile rack devices with an optional Mobile Rack Device Mounting Kit, or Sonnet's Twin $10G^{TM}$ dual-port copper 10GBase-T 10Gigabit Thunderbolt 2 adapter, the xMac Pro Server expands your Mac Pro's capabilities and makes it road-ready, too.

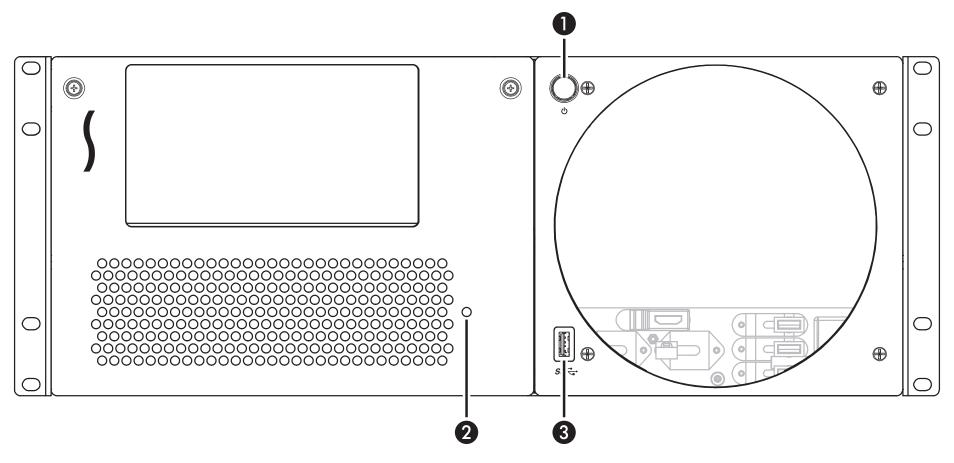
Compatibility

- Mac Pro with Thunderbolt ports
- OS X® 10.9.5 or later

System Requirements

While the xMac Pro's PCIe card expansion system requires no drivers, the expansion cards you install do; Thunderbolt-compatible drivers to enable them to work properly through the Thunderbolt interface are required. More information on many cards that are compatible with xMac Pro Server is available at: http://sonnettech.com/support/charts/thunderbolt/index.html





External Features

1 - Power Switch

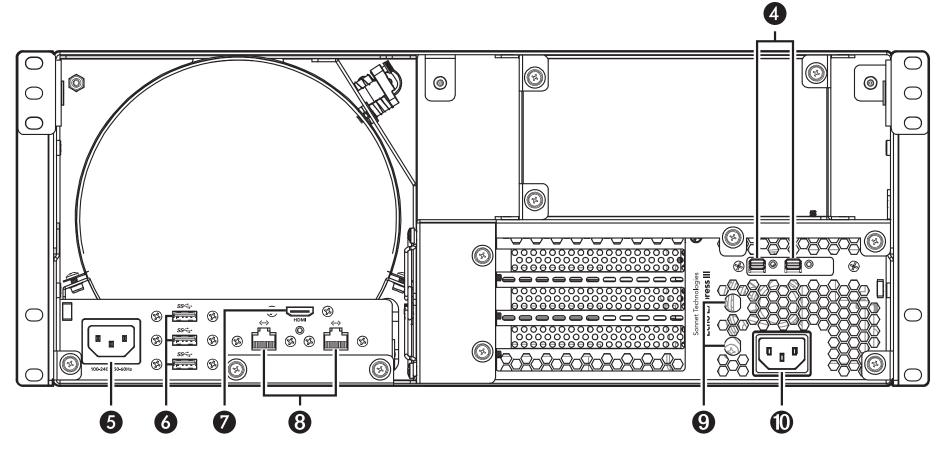
This button activates the Mac Pro's power switch; the PCIe slots' power supply turns on and off along with the computer.

2 - Power Indicator LED

This LED lights when: the PCIe card expansion module is powered, the Thunderbolt cable between the module and your computer is plugged in securely, and the computer powered on. This LED turns off when your computer is sleeping

3 - USB 3.0 Port

This port connects to the Mac Pro through a cable attached behind the front panel.



4 – Thunderbolt Ports

Connect the included Thunderbolt cable between either port and one your computer's Thunderbolt ports; the other port may be used to connect to another Thunderbolt device when the Mac Pro's remaining Thunderbolt ports are filled.

5 - Computer Mounting Module Power Input Socket This socket connects to the Mac Pro through a cable attached to the back panel. Connect your Mac Pro's AC power cable here.

6 – USB 3.0 Ports

These ports connect to the Mac Pro through cables attached to the back panel.

7 – HDMI Port

This port connects to the Mac Pro through a cable attached to the back panel. This port supports Sonnet's locking HDMI cable.

8 – Gigabit Ethernet Ports

These RJ-45 ports connect to the Mac Pro through cables attached to the back panel.

9 – BNC Connector Mounting Holes

These accommodate the installation of BNC connectors like those used for HD/SDI output from the RED ROCKET-X transcoding card, or for MADI and word clock input and output from cards like RME's HDSPe MADI FX.

10 – PCIe Card Expansion Module Power Input Socket Connect the included AC power cable here.

PCIe Card Expansion Module

1 – PCIe Card Bracket Locking Plate

This plate secures PCIe cards and port access covers in place.

2 – Port Access Covers

These cover openings when PCIe slots are unoccupied.

3 – Slot 1

This is an x8 electrical (x8 mechanical) PCIe 2.0 slot. It is also compatible with PCIe 1.1 and 3.0 cards.

4 – Slot 2

This is an x8 electrical (x16 mechanical) PCIe 2.0 slot. It is also compatible with PCIe 1.1 and 3.0 cards.

5 – Slot 3

This is an x4 electrical (x8 mechanical) PCIe 2.0 slot. It is also compatible with PCIe 1.1 and 3.0 cards.

6 – Thunderbolt Interface Card

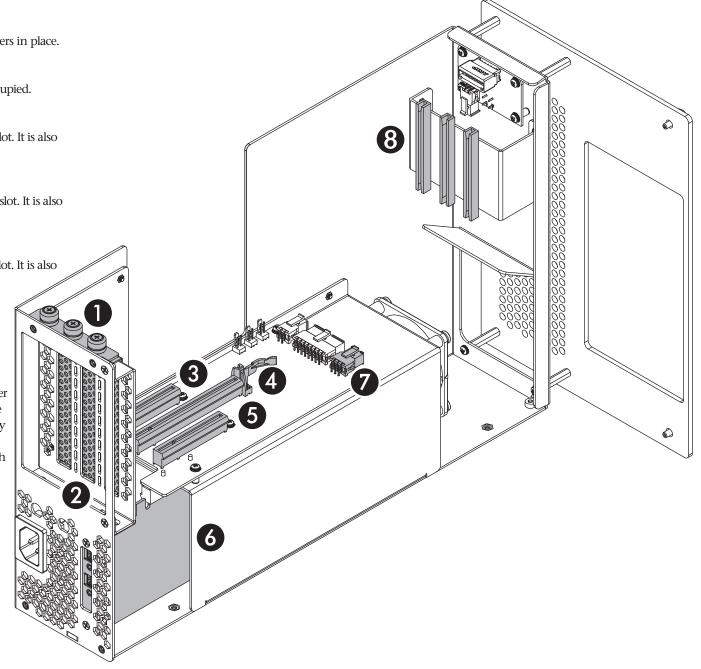
This card is installed in its own unique slot and may not be moved to another slot.

7 – 6-Pin Auxilliary Power Connector

Plugged into this connector is the auxiliary power cable for cards requiring extra power, such as the Avid Pro ToolslHDX or RED ROCKET-X. You may need to disconnect the cable plugged in to this connector and replace it with one that came with your card.

8 - PCIe Card Guides

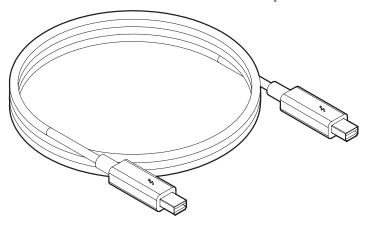
When installing full-length cards, use these to support and secure the cards.



Additional Parts

Thunderbolt Cable

This cable connects the Mac Pro to the PCIe card expansion module.



ThunderLok™ Thunderbolt Connector Retainer Clip

This secures a Thunderbolt connector plugged into the PCIe card expansion module's Thunderbolt port to prevent accidental cable disconnection. This is not compatible with optical Thunderbolt cables.



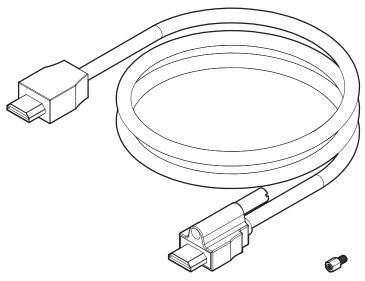
5/64-Inch Hex Wrench

This tool is used to adjust the position of the computer mounting module's power switch set screw.



Locking HDMI Cable and Standoff

This cable connects a monitor to the xMac Pro Server, providing a secure connection to the computer mounting module's HDMI port. The standoff provides the proper spacing between the locking connector and the computer mounting module.



Mac Pro Bottom Cover Label

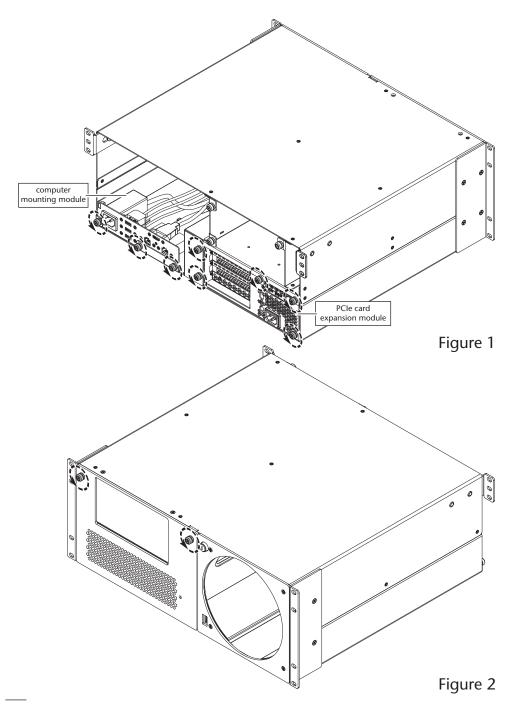
This label is applied to the bottom of the Mac Pro to cover its labeling except for the serial number, and orient the words Mac Pro parallel to the xMac Pro Server enclosure.



A – Remove Computer Mounting and PCIe Card Expansion Modules

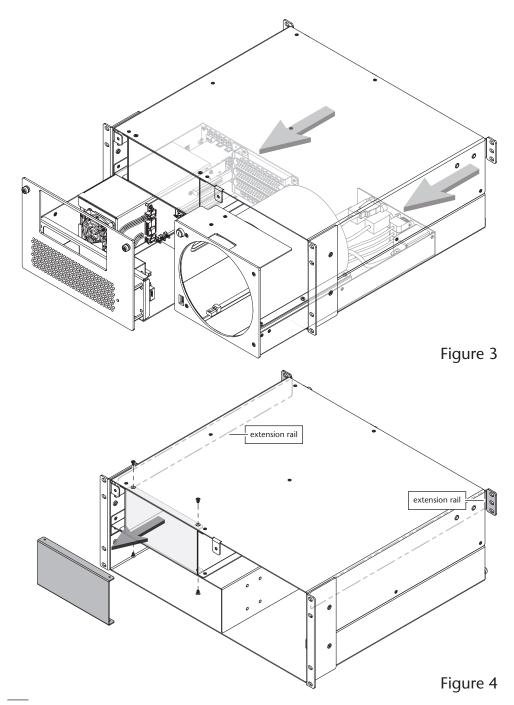
- 1. Remove the xMac Pro Server from its packaging, and then set it on a flat, level surface.
- 2. Loosen the eight thumbscrews securing the computer mounting module and PCIe card expansion module to the back of the rackmount enclosure (Figure 1).

3. Loosen the two thumbscrews securing the PCIe card expansion module to the front of the rackmount enclosure (**Figure 2**).



4. Gently pull out the computer mounting and PCIe card expansion modules through the front of the enclosure, and then set them aside (**Figure 3**).

- **5.** OPTIONAL STEP: If you are installing an optional Sonnet Mobile Rack Device Mounting Kit or Twin 10G dual-port copper 10GBase-T 10 Gigabit Ethernet Thunderbolt 2 adapter, use a Phillips screwdriver to remove the four screws securing the blank plate inside the enclosure, and then remove and set aside the blank plate. **(Figure 4)**.
- 6. OPTIONAL STEP: If you are installing the xMac Pro Server into a rack where mounting support for the back of the rackmount enclosure is not present, you may slide out and remove the extension rails at this time. If you purchased optional long rackmount extension rails (Sonnet part number PRO-RSS-L), remove the included rails and install the long ones at this time.
- 7. Install the rackmount enclosure into the equipment rack now.



B – Install Cards Into PCIe Card Expansion Module

Support Note: To avoid damaging components due to static electricity discharge, wear an antistatic wrist strap while working inside the PCIe card expansion module.

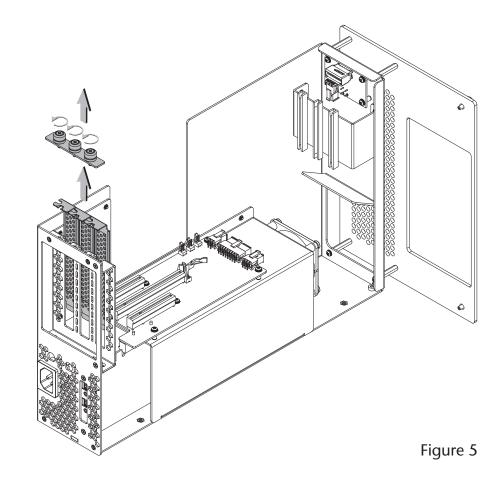
- Turn the PCIe card expansion module so the PCIe slots are facing up (Figure 5).
- 2. Loosen the three thumbscrews of the PCIe card bracket locking plate, and then remove and set it aside (Figure 5).
- 3. Remove and set aside the port access covers (Figure 5).

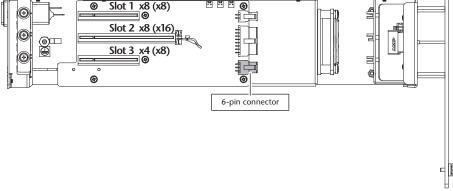
WARNING: When handling computer products, take care to prevent components from being damaged by static electricity; avoid working in carpeted areas. Handle expansion cards only by their edges and avoid touching connector traces and component pins. Also, avoid touching the PCIe card expansion module's circuit boards and any of its components.

4. OPTIONAL STEP: If you are installing a PCIe card which requires additional power and must be connected to auxiliary power, locate the wire harness connected the 6-pin connector indicated in the graphic to the right (Figure 6). Remove the cable twist tie securing the wire harness, and move the loose connector aside for later connection. Otherwise, go to the next step.

Support Note: If you are installing an Avid Pro ToolsIHDX PCIe card, you will need to disconnect the PCIe card expansion module's auxiliary power wire harness plugged into the 6-pin connector indicated in **Figure 6**, and replace it with the one included with the Avid card.

5. OPTIONAL STEP: If you are installing BNC connectors into the PCIe card expansion module's mounting holes, skip to the appendix at the end of the document for instructions. Otherwise, go to the next step.

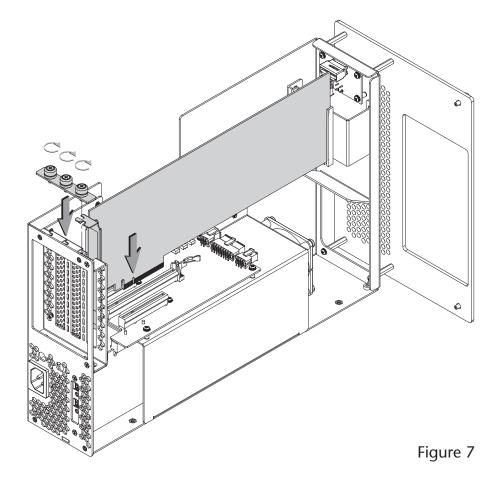




6. Remove a PCIe card from its packaging, handling the card by its edges and without touching any components or gold connector pins.

Support Note: If you are installing an x8 PCIe 1.1 card like the original Red Rocket (not Red Rocket-X), or certain 10 Gigabit Ethernet cards, installing it into slot 3 may result in reduced performance. We recommend you install it into either slot 1 or 2 for best performance.

- 7. Line up the card's connector with the slot, and then gently but firmly press the card straight into the slot; do not rock the card or force the card into the slot. If you encounter excessive resistance, check the card's connector and the slot for damage, and then try inserting the card again (Figure 7).
- **8.** Repeat steps 6 and 7 as necessary with any remaining cards.
- 9. If you installed a card which requires auxiliary power, connect the auxiliary power connector to it now. If you installed cables with BNC connectors into the chassis, connect them to the card you installed.
- 10. If there are any unoccupied slots, install the port access covers you removed previously to cover any openings (Figure 7).
- 11. Secure the cards and port access covers using the previously removed PCIe card bracket locking plate (Figure 7).
- 12. Set aside the PCIe card expansion module for now.

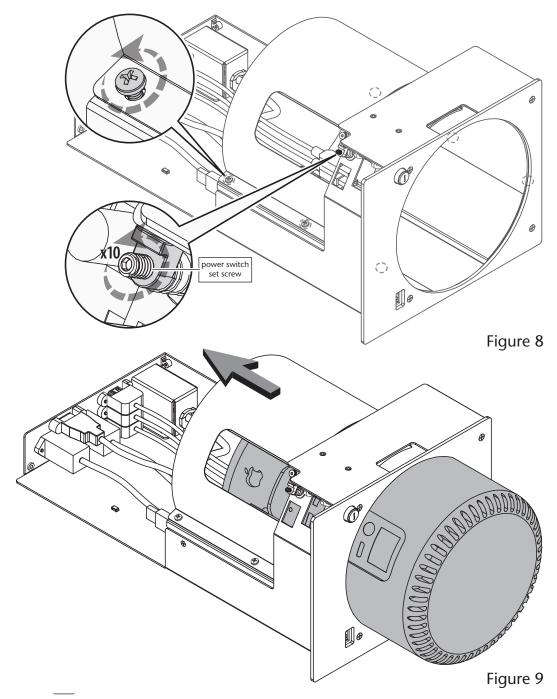


C - Install Mac Pro Into Computer Mounting Module

- 1. Using a Phillips screwdriver, loosen, but do not remove, the six screws securing the computer mounting module's top bracket to its bottom bracket (Figure 8).
- 2. Using the included 5/64-inch hex wrench, back out the computer mounting module's power switch set screw by turning the screw counter-clockwise 10 complete turns (Figure 8).

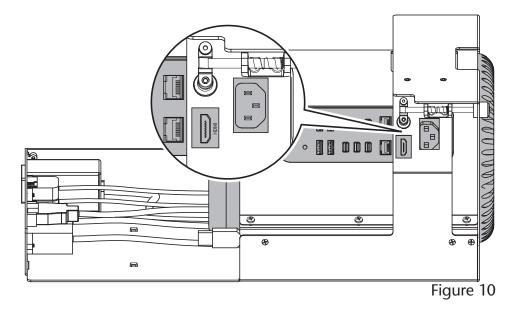
WARNING: Before inserting the Mac Pro into or removing it from the computer mounting module, you must back out the power switch set screw to prevent damage to the computer and power switch.

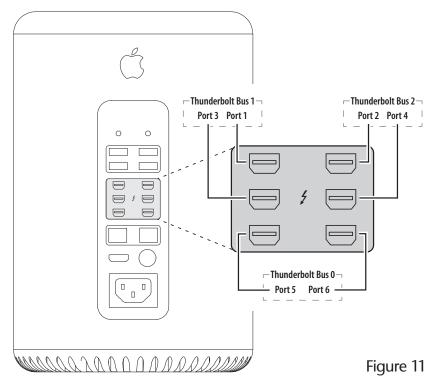
- 3. Remove the Mac Pro from its packaging.
- **4.** Holding the computer with its ports facing up, *very carefully* insert the computer top-first into the computer mounting module as shown, aligning the Mac Pro's ports with the openings in the module's top bracket. (**Figure 9**).



5. Adjust the Mac Pro within the computer mounting module so that its power and HDMI ports are centered in the bracket openings (**Figure 10**).

Support Note: The Mac Pro is equipped with three Thunderbolt 2 busses, each with two ports (Figure 11). The xMac Pro Server's PCle card expansion module connects to one of the ports with the included Thunderbolt cable. Sonnet recommends that, whenever possible, you connect the PCle card expansion module to its own bus, leaving the other Thunderbolt port on the bus unoccupied. This will ensure the installed PCle cards get the full bandwidth of the bus. Sonnet recommends you connect only one high-bandwidth PCle device (such as the PCle card expansion module) and one display per bus.

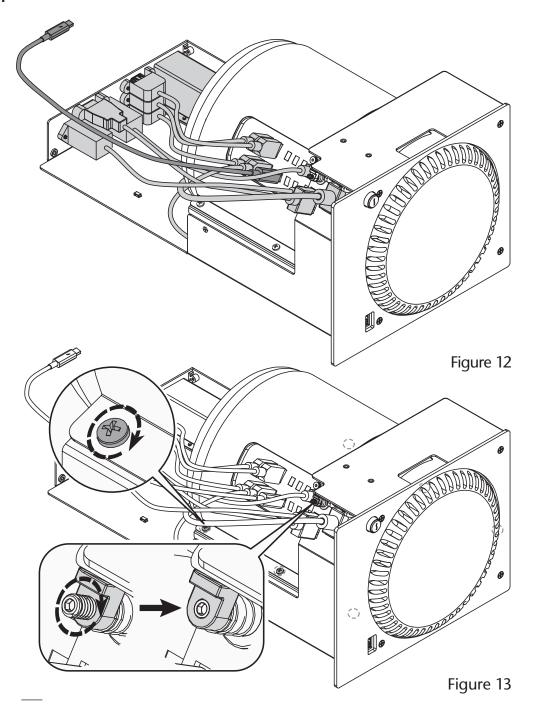




- 6. Connect the computer mounting module's Gigabit Ethernet, HDMI, power, and USB 3.0 cables to the corresponding ports on the computer (Figure 12).
- 7. Connect the included Thunderbolt cable plus any other Thunderbolt cables to the computer, and then secure them to the computer mounting module's cables (Figure 12).

- 8. Tighten the six screws securing the computer mounting module's top bracket to its bottom bracket. Be certain to tighten the screws securely to prevent the computer from moving within the brackets (Figure 13).
- 9. Tighten the power button's set screw by turning it clockwise just until the top of the screw is flush with its housing (Figure 13).
- 10. Connect your computer's power cable to the computer mounting module's power port and to a powered outlet. If the computer *does not* turn on by itself, go to the next step. If the computer *does* turn on by itself, disconnect the power cable. Loosen the set screw by turning it 1/4 turn counter-clockwise. Connect the power cable again and repeat this step until the computer does not turn on when the power cable is connected.
- 11. Press the computer mounting module's power button and verify that it activates the Mac Pro's power switch and turns on the computer. If the computer does not turn on, tighten the computer mounting module's power button set screw by turning it 1/4 turn clockwise. Press the computer mounting module's power button again. If the computer turns on, disconnect the power cable and continue to the next step. Otherwise, continue adjusting and testing until the computer turns on when you press the power button.

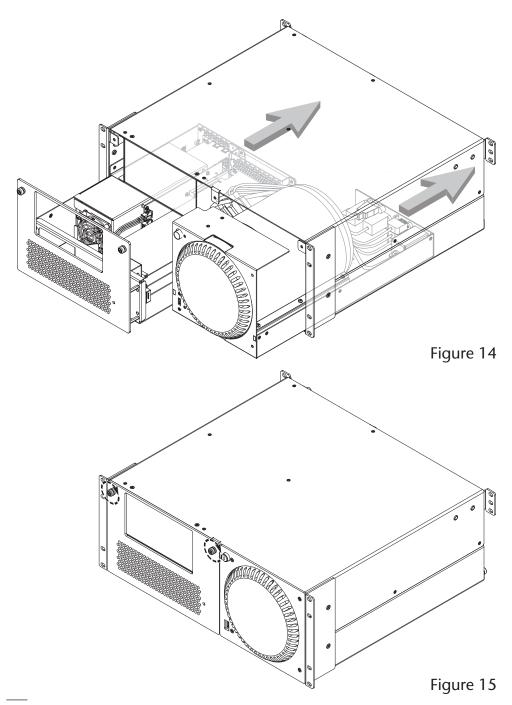
Support Note: Sonnet recommends that you tape the hex wrench to the floor of the computer mounting module for safekeeping in case you need to remove the Mac Pro from the module in the future.



D – Install Computer Mounting Module and PCIe Card Expansion Module

- 1. OPTIONAL STEP: If you are also installing a Mobile Rack Device Mounting Kit, do so now, referring to its user's manual for instructions. Or, if you are installing a Twin 10G, refer to the Twin 10G Mounting Kit installation instructions. Otherwise, go to the next step.
- **2.** Carefully slide the computer mounting module into the xMac Pro Server's rackmount enclosure until it stops (**Figure 14**).
- **3.** Carefully slide the PCIe card expansion module into the rackmount enclosure until it stops (**Figure 14**).

4. Secure the PCIe card expansion module to front of the rackmount enclosure by turning the two thumbscrews clockwise (**Figure 15**).

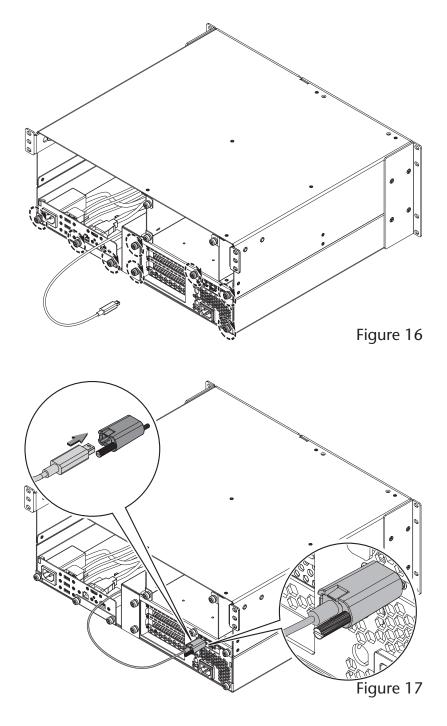


5. Secure the computer mounting and PCIe card expansion modules to the back of the rackmount enclosure by turning the eight thumbscrews clockwise (**Figure 16**).

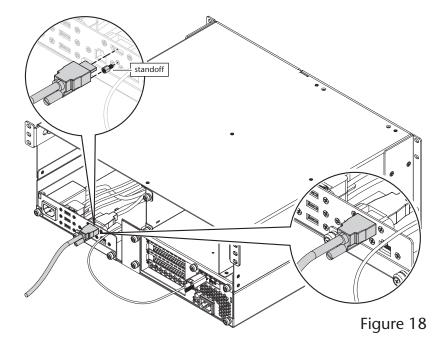
Support Note: Sonnet's ThunderLok Thunderbolt connector retainer clip secures the included Thunderbolt cable to the PCle card expansion module to prevent accidental disconnects. Although it is compatible with other copper Thunderbolt cables, it is not compatible with optical Thunderbolt cables.

To attach the clip to the cable, remove them from their packaging, and then insert the connector into the connector clip as shown (Figure 17). Note that the connector will pass all the way through the clip; when you connect the cable to the chassis, the clip will secure the cable.

6. Plug in the included Thunderbolt cable to either Thunderbolt port on the PCIe card expansion module (Figure 17). Secure the retainer clip to the expansion module if you attached it.



- 7. OPTIONAL STEP: If you are connecting a monitor with an HDMI input to the xMac Pro Server, screw in the included standoff to the threaded hole just below the HDMI port on the back of the computer mounting module (Figure 18). Then, plug in the included HDMI cable to the computer mounting module's HDMI port, securing the locking connector by turning its thumbscrew clockwise. Plug in the other end of the cable to the monitor.
- **8.** Connect the Mac Pro's power cord between a wall outlet or power strip and the computer mounting module's power socket.
- 9. Connect the included power cord between a wall outlet or power strip and the PCIe card expansion module's power socket. Note that the power indicator on the xMac Pro Server will not light until the computer is powered on.
- 10. Connect any remaining interface cables and devices to the computer mounting module, and to the PCIe cards installed in the PCIe card expansion module.
- 11. OPTIONAL STEP: Apply the bottom cover label to the Mac Pro by peeling off the backing material, aligning the cutout (the area without ink) over the words "Serial Number" and the computer's serial number, and making sure the words "Mac Pro" appear level.



Chapter 4 – Verify Connections Using System Information

A - Verify the xMac Pro Server is Recognized

- 1. With the computer mounting module and PCIe card expansion module powered, and connected to each other via the included Thunderbolt cable, turn on the computer.
- 2. From the Apple menu, select About This Mac; the System Information application will launch.
- **3.** When the *About This Mac* window opens, click More Info; a summary of specifications will appear.
- 4. Click System Report; a full report window will appear.
- 5. In the *System Information* window, click Thunderbolt under the Hardware header in the left column (**Figure 19**).
- 6. In the top right column under the Thunderbolt Device Tree header, you will see the computer, followed by "Echo Express III" (Figure 19).

Support Note: If "Echo Express III" is not listed, disconnect and reconnect the Thunderbolt cable between the computer and computer mounting module. Note that it is not necessary to shut down the computer before disconnecting and reconnecting the cable.

B – Verify Installed Cards are Recognized

- When a card is installed into one of PCIe card expansion module's PCIe slots, the PCIe slot (listed as a port) the Status should appear as connected.
- 2. Click PCI Cards under the Hardware header in the left column (Figure 20).
- 3. At the top of the right column, installed cards are listed. By selecting a card at the top, detailed information is listed. You should see "Yes" next to Driver Installed and Tunnel Compatible, otherwise the card or driver may not be Thunderbolt-compatible (Figure 20).

Support Note: While the PCIe card expansion module requires no additional drivers, installed cards require Thunderbolt-compatible drivers to enable their use; it may be necessary to download and install new drivers.

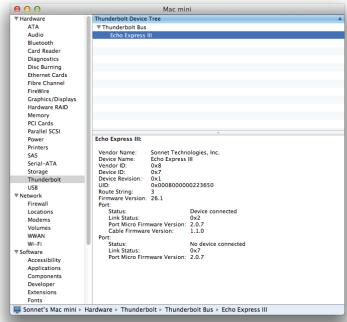


Figure 19

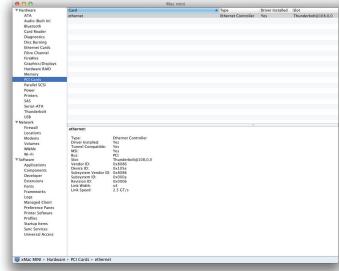


Figure 20

Chapter 5 – Tips, General Information, and Known Issues

TIPS, GENERAL INFORMATION

Keeping the Cards Cool

With its optimized airflow design and temperature-controlled fans providing cooling at all times, the xMac Pro Server provides adequate cooling for the installed cards. Do not operate the xMac Pro Server with the inner assembly removed, and do not block any of the vents!

Otherwise, the installed cards and PCIe card expansion module's components may overheat.

Power Indicator LED Operation

Because the PCIe card expansion module automatically powers on and off with the computer to which it's connected, the power indicator LED only turns on when the computer is on, and turns off when the computer is sleeping or powered off.

Connecting Additional Thunderbolt Peripheral Devices

You may connect up to six Thunderbolt peripheral devices total in a daisy chain. Because of the Mac Pro's inclusion of three Thunderbolt busses and six ports, Sonnet recommends you connect additional Thunderbolt peripheral devices to the computer first, before connecting them to the xMac Pro Server's open Thunderbolt port.

Using Expansion Cards Without User-Installed Drivers

Some Thunderbolt-compatible expansion cards, like Sonnet's Allegro™ FW800 PCIe FireWire® adapter and Sonnet's Tempo™ SATA Pro 6Gb eSATA cards, use drivers built into the OS.

Replacing or Adding Cards After Initial Installation

If you decide to replace or add a card to the xMac Pro Server after the initial setup, shut down the computer, and then disconnect the power cord and Thunderbolt cables from the computer mounting module before installing a card.

KNOWN ISSUES

Not all PCIe Cards Will Perform at 100%

Thunderbolt 2's PCIe bandwidth is limited to 20Gbps. While many cards will operate at full performance, some may not due to the fact they require more bandwidth than Thunderbolt is capable of delivering.

OS X Updates May Break Compatibility

Specific device drivers that work under one version of OS X may not work under a later version. Before updating to the latest OS, we recommend that you contact your PCIe cards' manufacturers to verify that the existing drivers work with the new OS version. Note that other software updates for the computer may also break compatibility.

PCIe CARDS ARE NOT HOT-PLUGGABLE!

Never install a PCIe card into the computer mounting module while it is connected to the Mac Pro or a power outlet! If you do, you risk injury, and damage to the card, module, and computer.

Chapter 6 – Specifications, Precautions, FCC Compliance, and Support Information

Specifications

-	
Dimensions (WxDxH)	19 x 16 x 7 in. (48.3 x 40.6 x 17.8 cm)
Weight	32.5 lbs (14.7 kg)
External Connectors	 Two Thunderbolt (one open, one used) Two RJ-45 Gigabit Ethernet port extensions Four USB 3.0 port extensions (one front mount and three rear mount) One HDMI port extension One power (C14-type)
Internal Connectors	One 6-pin Mini-Fit Jr (same type as on legacy Mac Pro motherboard; provides up to 75W of power for PCIe cards that require supplemental power) One power (C13-type)
PCIe Expansion Slots	 One x8 mechanical (x8 electrical) PCIe 2.0 One x16 mechanical (x8 electrical) PCIe 2.0 One x8 mechanical (x4 electrical) PCIe 2.0
PCIe Cards Supported	One full-length, full-height, double-width PCIe card, plus one single-width card Or Three full-length, full-height, single-width PCIe cards
Compatible PCIe Cards	See Sonnet Website (www.sonnettech.com)
Power Supply	Universal 300W, 115-230V AC, 50-60 Hz ⁽¹⁾
Operating Temperatures	0° C to 35° C (32° F to 95° F)
Power Supply	Universal 300W, 115-230V AC, 50-60 Hz ⁽¹⁾
RoHS Compliant	Yes

Package Contents	• xMac Pro Server, assembled
	• Power cord
	Thunderbolt cable
	• Locking HDMI cable with standoff
	 ThunderLok Thunderbolt connector retainer clip⁽²⁾
	• 5/64-inch hex wrench
	• Cover label (for bottom of Mac Pro)
	• User's guide

- 1. Power supply will operate at 90-115V AC, with linear power deration of 240W-300W over that range.
- 2. Not compatible with optical Thunderbolt cables.

SAFETY PRECAUTIONS

Please read this section carefully before proceeding. These precautions explain the correct and safe use of this device, thereby helping to prevent injury to you or others, and also help you to minimize the risk of damaging the device.

- Do not attempt to modify the enclosure. If this device appears to be malfunctioning, contact your reseller or local distributor.
- Do not drop the system; dropping or mishandling the enclosure or modules may result in a malfunction leaving the product inoperable.
- Do not expose the device to rain, use it near water or containers that contain liquids which might spill into any openings, or in damp or wet conditions.
- If unusual smells, sounds, or smoke come from the device, or if liquids enter it, unplug it from the electrical outlet immediately.
- Follow the instructions in this manual carefully; contact your reseller or local distributor for additional advice not covered in this User's Guide.

FCC Compliance

xMac Pro Server complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: This device may not cause harmful interference, AND this device must accept any interference received, including interference that may cause undesired operation.

Contacting Customer Service

The Sonnet Web site located at www.sonnettech.com has the most current support information and technical updates. Before you call Customer Service, please check our Web site for the latest updates and online support files, and check this User's Guide for helpful information.

When you call Customer Service, have the following information available so the customer service staff can better assist you:

- Product name
- Product serial number
- Date and place of purchase
- Computer model
- PCIe card models
- Operating system version
- Software/firmware versions

USA Customers

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

Tel: 1-949-472-2772

(Monday–Friday, 7 a.m.–4 p.m. Pacific Time)

E-mail: support@sonnettech.com

For Customers Outside the USA

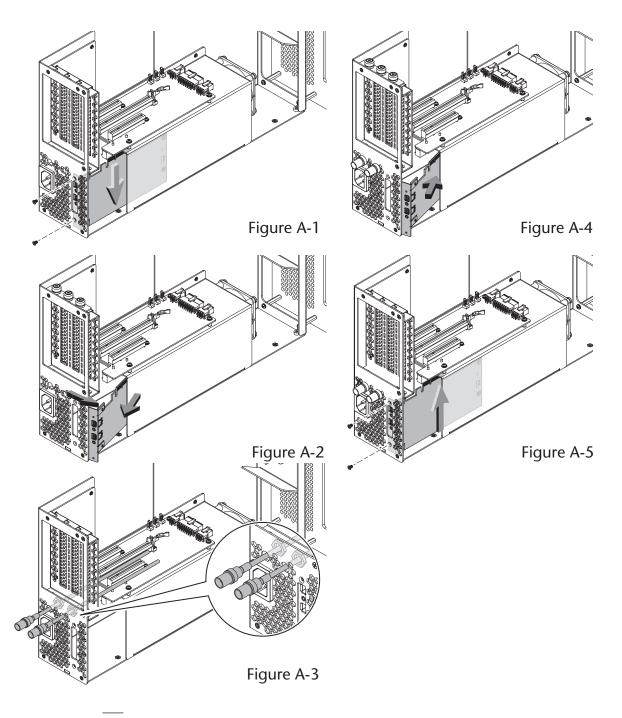
For support on this product, contact your reseller or local distributor.

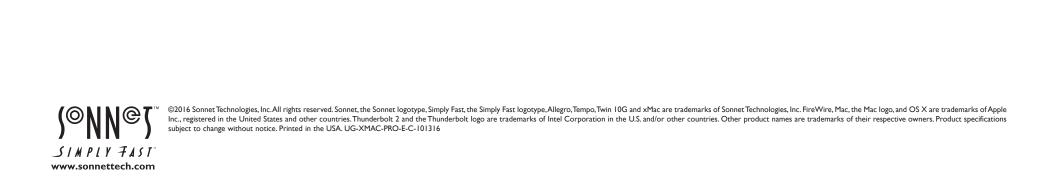
Visit Our Web Site

For the most current product information and online support files, visit the Sonnet Web site at www.sonnettech.com/support/. Register your product online at http://registration.sonnettech.com to be informed of future upgrades and product releases.

Appendix A – BNC Connector Installation Steps

- 1. Remove and set aside the two screws securing the Thunderbolt interface card to the PCIe card expansion module (Figure A-1).
- 2. Gently push down on the edge of the card to disengage the card from its slot (Figure A-1).
- **3.** Grasping the card by its edges, rotate the card out of the module, and then pull it out (**Figure A-2**). Set aside the Thunderbolt interface card on flat, level surface, component side down.
- 4. Insert the BNC connector cables through the BNC connector mounting holes in the module (Figure A-3). Route the cables out over the top of the PCIe slot riser card.
- 5. Slide the BNC connector nuts over the cables, and then secure the connectors to the module (Figure A-3).
- **6.** Grasping the Thunderbolt interface card by its edges, insert the card back into the module (**Figure A-4**).
- 7. Line up the card's connector with the slot, and then gently but firmly press the card straight into the slot; do not rock the card or force the card into the slot. If you encounter excessive resistance, check the card's connector and the slot for damage, and then try inserting the card again (Figure A-5).
- **8.** Using the two screws you removed previously, secure the Thunderbolt interface card to the module; **do not overtighten the screws (Figure A-5)**.
- 9. Return to step 6 on page 9 to complete the PCIe card installation steps.







Statement of Conformity

Sonnet Technologies, Inc. 8 Autry Irvine, CA 92618 USA

Declare under our sole responsibility that the product(s):

Product Name:

xMac Pro Server XMAC-PS

Product Model(s):

To which this declaration relates is in conformity with the requirements of the following specifications:

ANSI C63.4-2009

FCC 47 CFR Part 15, Subpart B, Class B Digital Device.

ICES-003 Issue 5

Supplementary information:

accept any interference received, including interference that may cause undesired operation. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must

Signed by or for manufacturer:

Name: Title:

George Smith Director of Hardware Development

Sugar Hill, GA USA, January 27, 2015 Place and Date:





EC Declaration of Conformity In accordance with EN ISO 17050-1:2004

Sonnet Technologies, Inc. Manufacturer's Name:

Irvine, CA 92618 8 Autry Manufacturer's Address:

USA

In accordance with Directive(s):

LVD (2006/95/EC)

EMC Directive (2004/108/EC)

hereby declare, that the product

xMac Pro Server Product Name:

XMAC-PS Product Number(s): Conforms to the following Product Specifications:

IEC 60950-1:2005/A1:2009, EN 60950-1:2006/A11:2009/A1:2010/A12:2011/AC:2011 Safety:

EN 55022:2010 EMC:

EN 55024:2010

EN 61000-3- 2:2006 w/A1:2009 and A2:2009 EN 61000-3- 3:2008

I hereby decigre that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications. The unit complies with all applicable Essential Requirements of the Directives.

George Smith, Director of Hardware Development

Sugar Hill, GA USA January 27, 2015