TrueNAS® Mini XL+ Hardware Upgrades Guide

Version 1.2

This guide describes the procedures to safely open the case and install the various hardware upgrades that are available from iXsystems.

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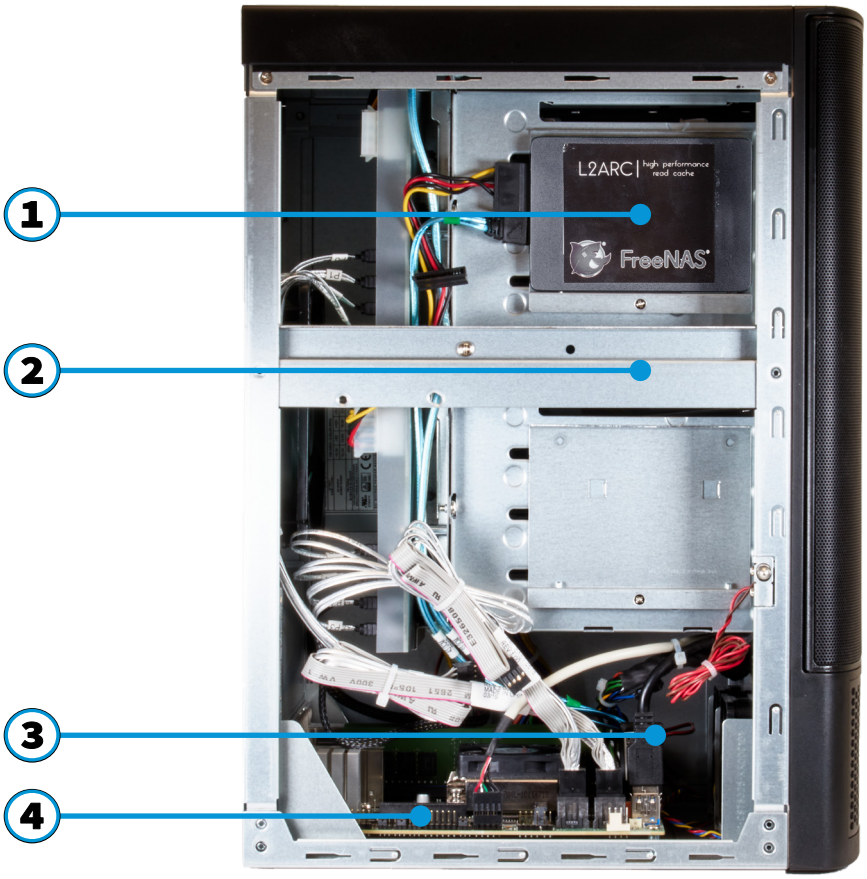

5 Power Supply
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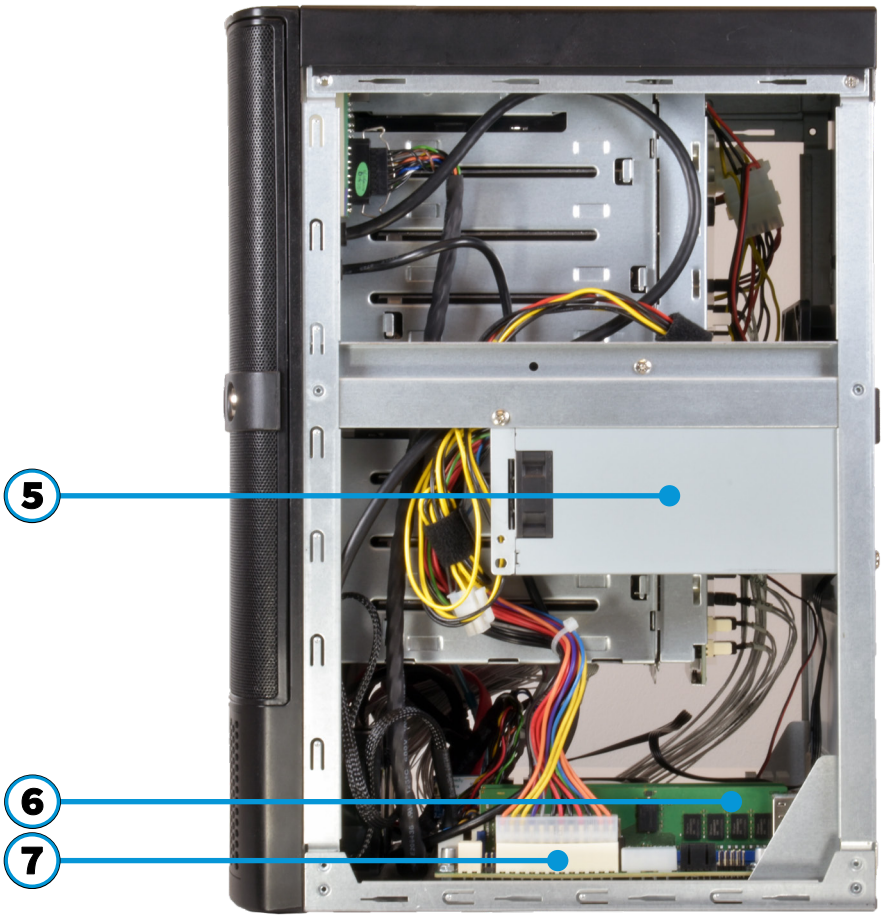


2 Preparation

A Philips screwdriver is needed for screws and a cutting instrument for any zip ties. Shut down the TrueNAS system and unplug the power cable. Note where any other cables are connected to the back of the system and unplug them also. If a "Tamper Resistant" sticker is present, removing or cutting it to remove the case does not affect the system warranty.

2.1 Anti-Static Precautions

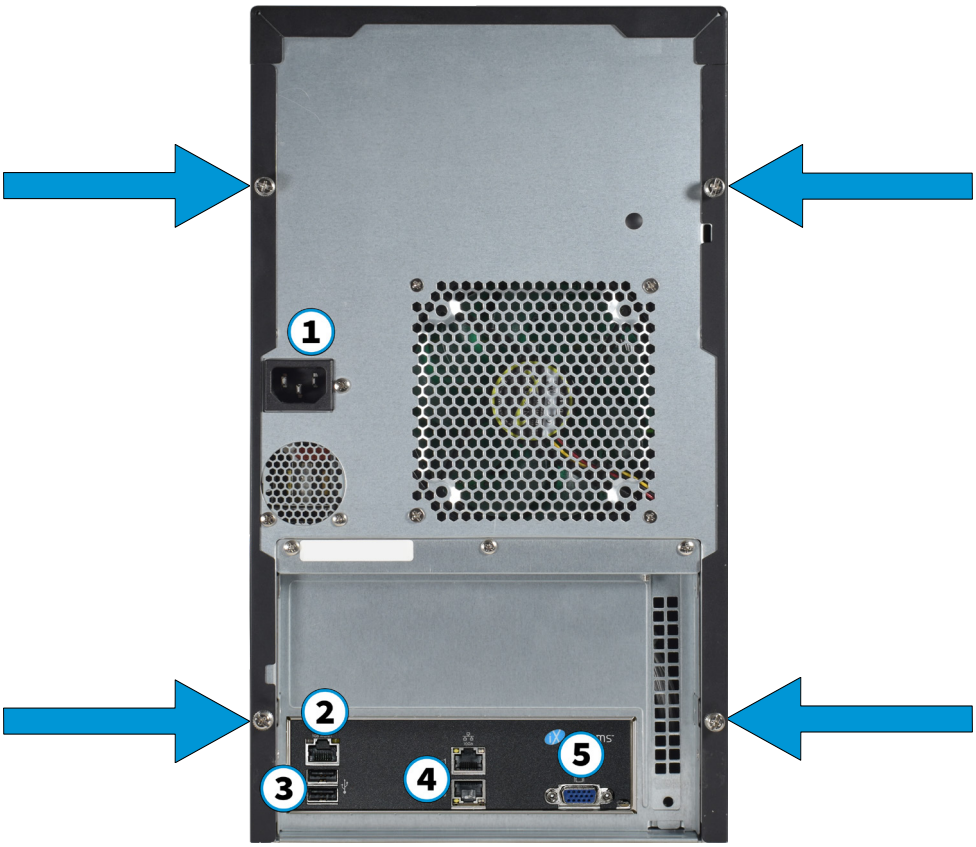
Static electricity can build up in your body and discharge when touching conductive materials. Electrostatic Discharge (ESD) is very harmful to sensitive electronic devices and components. Keep these safety recommendations in mind before opening the system case or handling system components:

1. Turn off the system and remove the power cable before opening the system case or touching any internal components.
2. Place the system on a clean, hard work surface like a wooden tabletop. Using an ESD dissipative mat can also help protect the internal components.
3. Touch the metal chassis of the Mini with your bare hand before touching any internal component, including components not yet installed in the system. This redirects static electricity in your body away from the sensitive internal components. Using an anti-static wristband and grounding cable is another option.
4. Store all system components in anti-static bags.

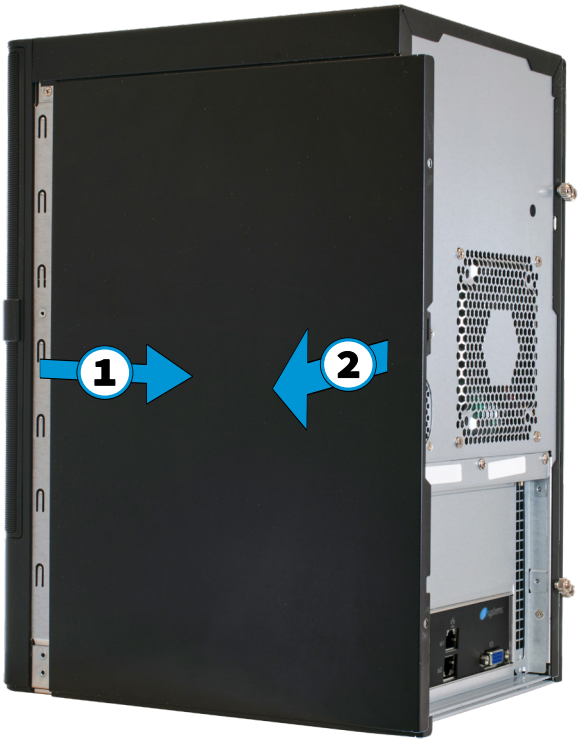
More details about ESD and preventative tips can be found on https://www.wikihow.com/Ground-Yourself-to-Avoid-Destroying-a-Computer-with-Electrostatic-Discharge

2.2 Opening the Case

Unscrew the four thumbscrews on the back of the Mini:



Slide a side panel off the chassis by grasping the side and pulling the panel away from the front of the system (**1**). When the side panel can no longer move away from the chassis frame, gently pull the panel away from the system (**2**).

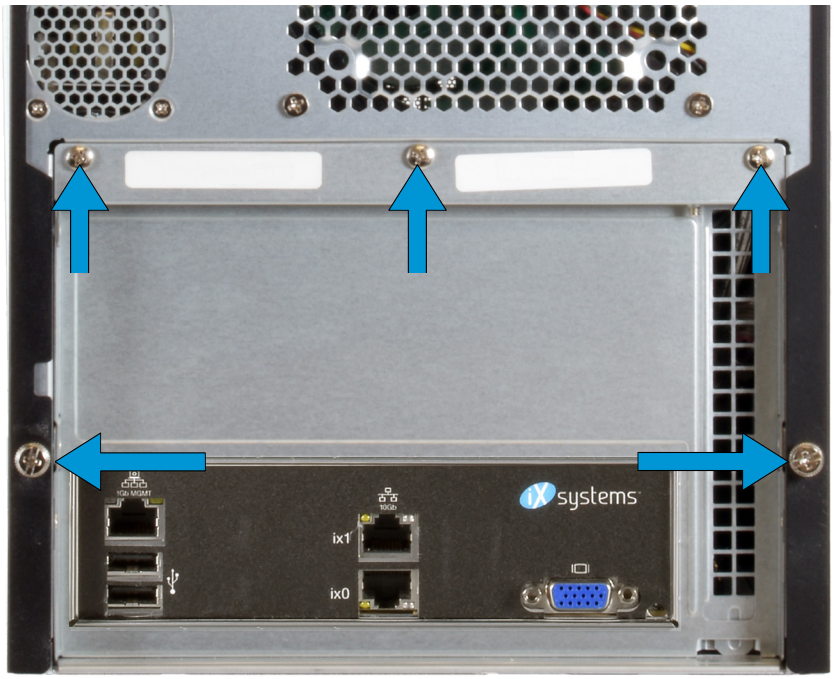


2.3 Removing the Motherboard Tray

Space inside the chassis is very limited and you might find additional room is required to add or remove components from the motherboard. The Mini motherboard is attached to a tray that can be unsecured and slid out from the back of the system.

> **Warning!**
> Be very careful when removing or inserting the motherboard tray into the system. It is recommended to note where cables are connected to the motherboard and disconnect them as needed to safely remove the motherboard from the system. Be sure to follow all anti-static precautions.

To unsecure the motherboard tray from the Mini chassis, unscrew each retaining screw from the back of the system.



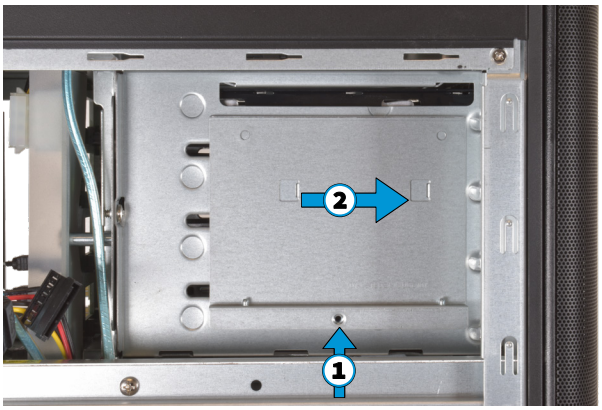
Very carefully pull the tray out of the back of the system. Continously check that no wires are being pulled or caught on other components inside the system.

3 Solid State Disk (SSD) Upgrades

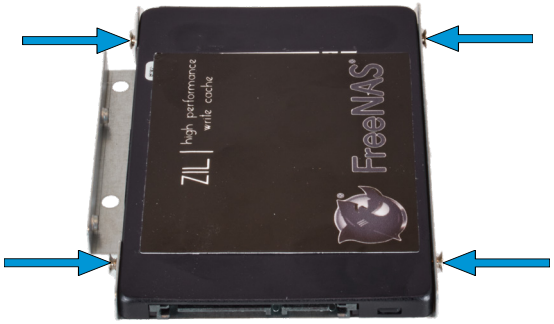
The SSD upgrade includes one or two SSD drives and mounting screws. One SSD is mounted in the external tray and one is mounted in an internal tray. Neither affects system operation.

3.1 Mini SSD Mounting

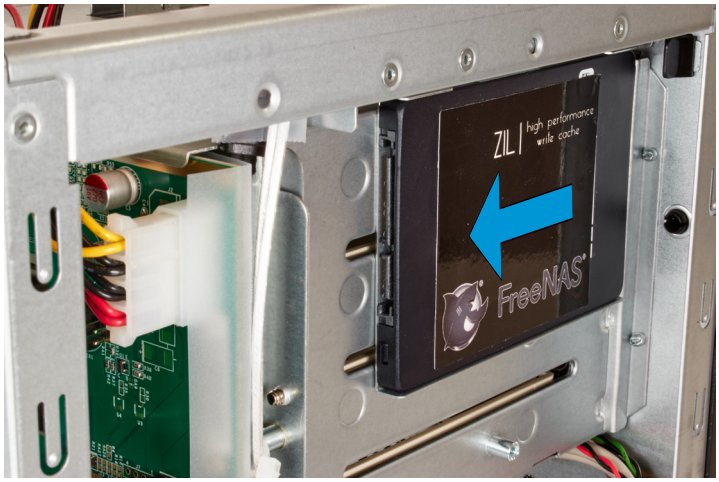
The internal SSD tray on the Mini XL+ is mounted on the side of the system. Remove the screw that secures the SSD tray to the system, then slide the tray forward and pull it away from the system to remove it.



Mount an SSD in the tray with four small screws, one at each corner. Make sure the SSD power and SATA connectors are pointed towards the back of the tray so the cables can be properly attached.



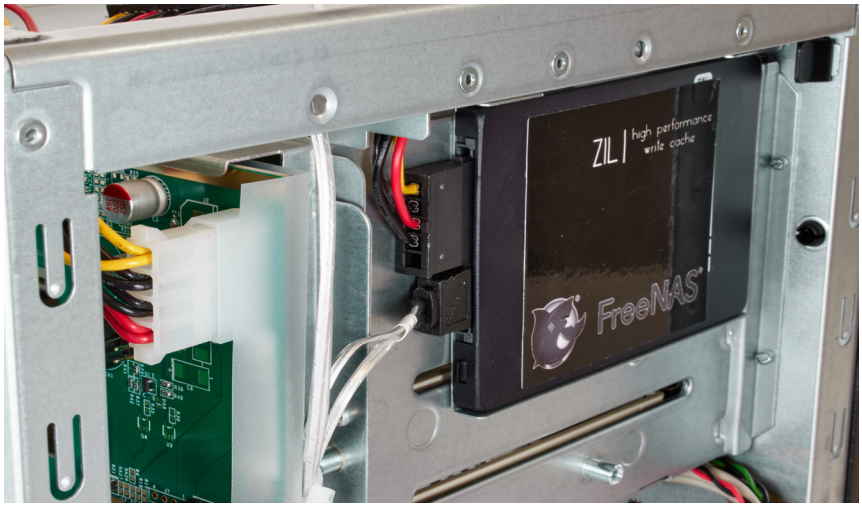
Replace the tray on the chassis by aligning the tray retention clips with the holes in the chassis, sliding the tray into place, and reattaching the original screws. Repeat the process if a second SSD is being installed.



3.2 SSD Cabling

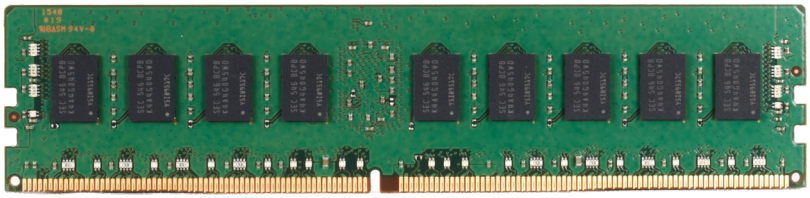
Additional power and data cables are already installed in the system, but you might need to cut a zip tie for the cables to reach the SSD. Attach these cables to each SSD by aligning the L-shaped keys on the cables and ports and gently pushing each cable into the port until it is firmly seated.

Inspect the cables to ensure they are not rubbing against a sharp metal edge or sticking out where they can be pinched or snagged when the case is slid back on.



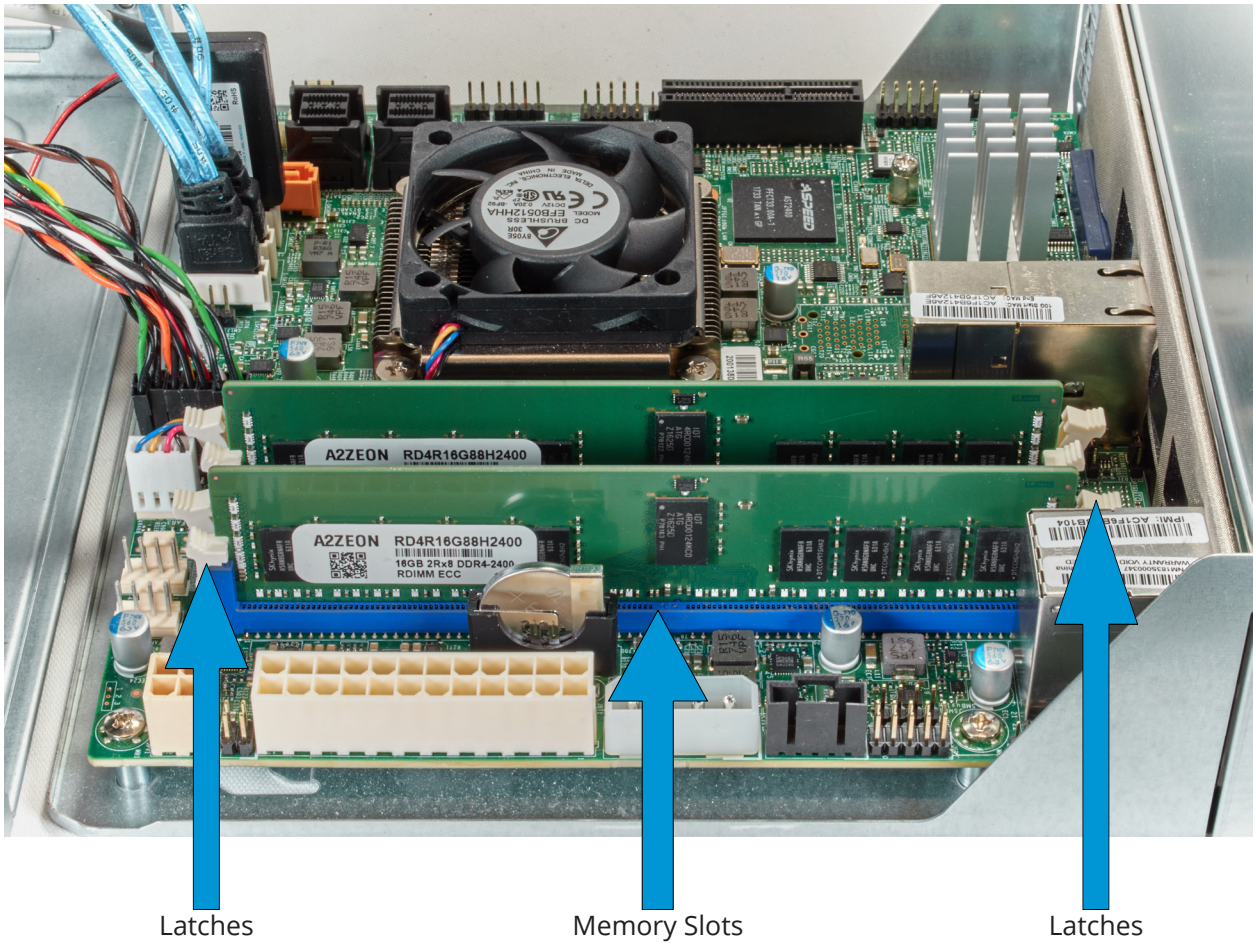
4 Upgrading Memory

A memory upgrade includes one or more inline memory modules:



The Mini XL+ motherboard has four memory slots, color-coded as blue and black pairs. The default memory is typically installed in the blue slots, with any memory upgrades installed in the black slots.

Each slot has latches on the ends to secure the memory in place. These latches need to be pushed open before installing the memory, but will automatically close as the module is pushed into place.



4.1 Installing Memory

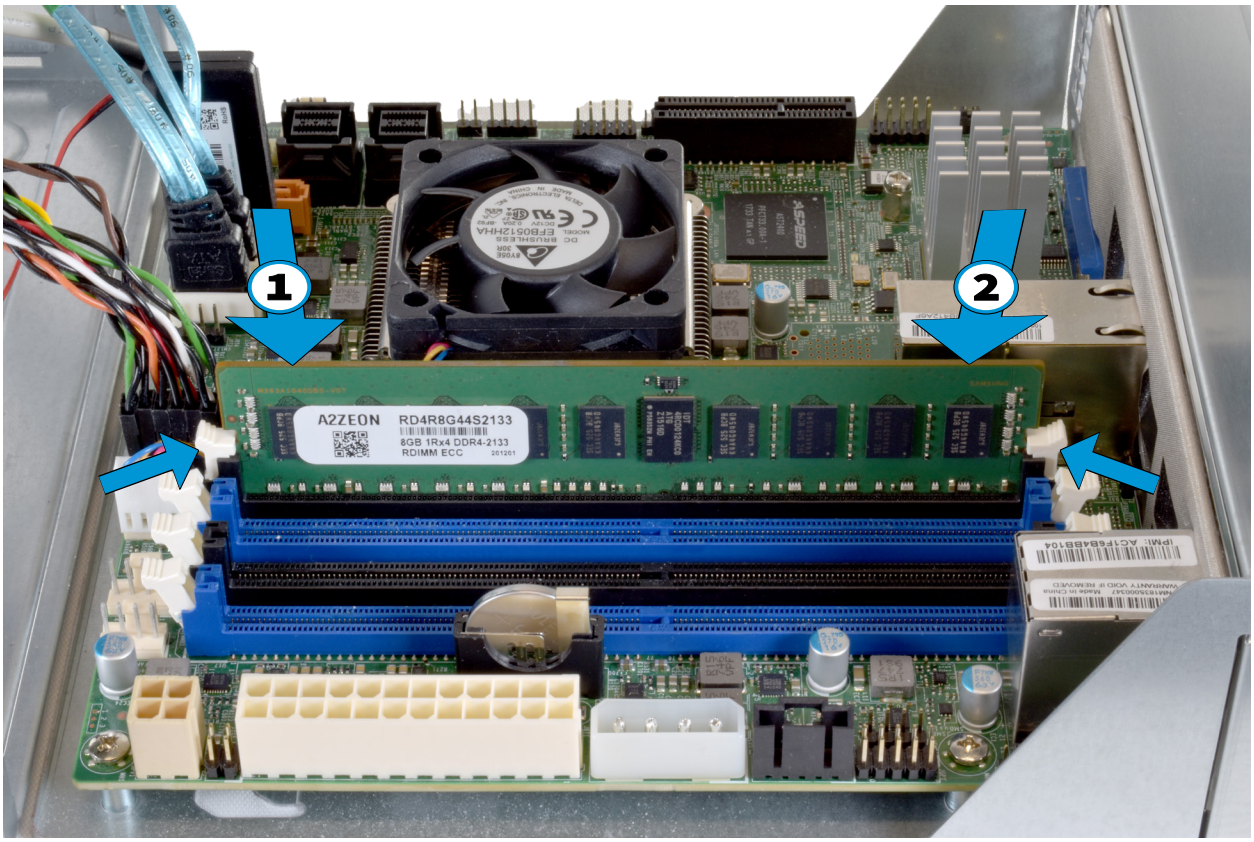
Memory is installed as same-capacity pairs in the matching color slots. Systems typically have memory already installed in the blue sockets, with the black slots reserved for additional memory.

Prepare the motherboard by pushing down on the memory latches to open them. These latches re-close as the memory is pushed into the motherboard slot, securing the memory in module in place.

Touch the metal chassis to discharge any static, then open the plastic package containing a memory module. Avoid touching the gold edge connector on the module. Line up the notch in the bottom of the memory module with the key in the socket. The notch is offset to one end. If the notch does not line up with the key built into the socket, flip the memory module around end-to-end.

Gently guide the module into the slot, pressing down on one end of the module until the hinged latch swings in, locking into place. Press down on the other end until that latch also locks into place. Repeat this process for each memory module to install.

> **Note**
> This image shows the motherboard with all of the obstructing cables removed. If you have to remove any cables to better access the memory slots, be sure to re-add them when finished installing the memory modules.

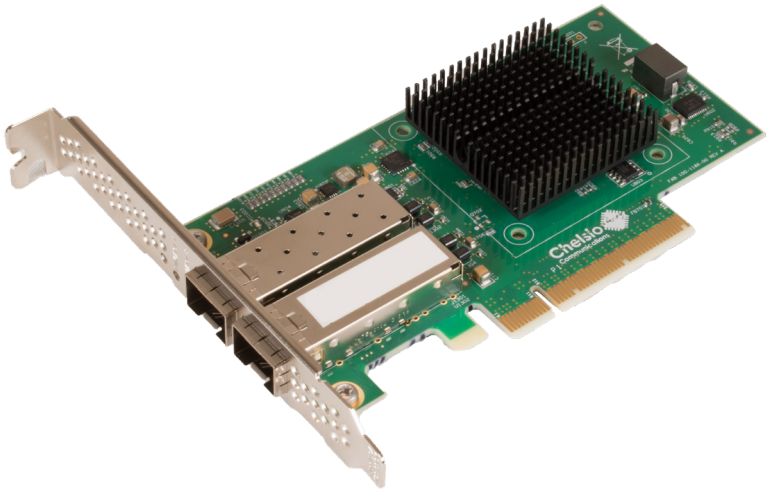


5 Upgrading Networking

The Network Upgrade Kit includes one Chelsio 10 Gb Network Interface Card with dual Small Form-factor Pluggable (SFP)+ ports. A half-height bracket is included in the box but is not needed for Mini XL+ network card installation. SFP+ modules are ordered and installed separately.

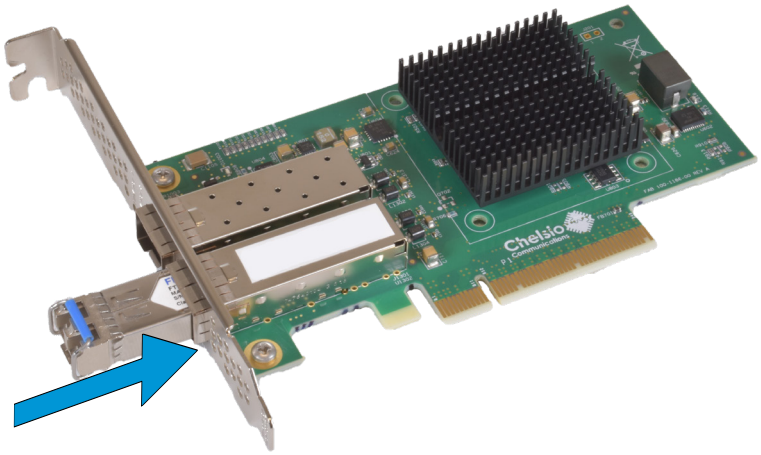
5.1 Network Card

The Chelsio 10Gb network card connects the system directly to a fiber optic network using the PCIe slot on the motherboard. This card supports installing two SFP+ modules (sold separately).



5.2 SFP+ Module Installation

Align the SFP+ module with the SFP+ cage on the network card and gently push until it is fully seated in place. Different SFP+ module products are available, and the connection procedure can vary slightly by product.



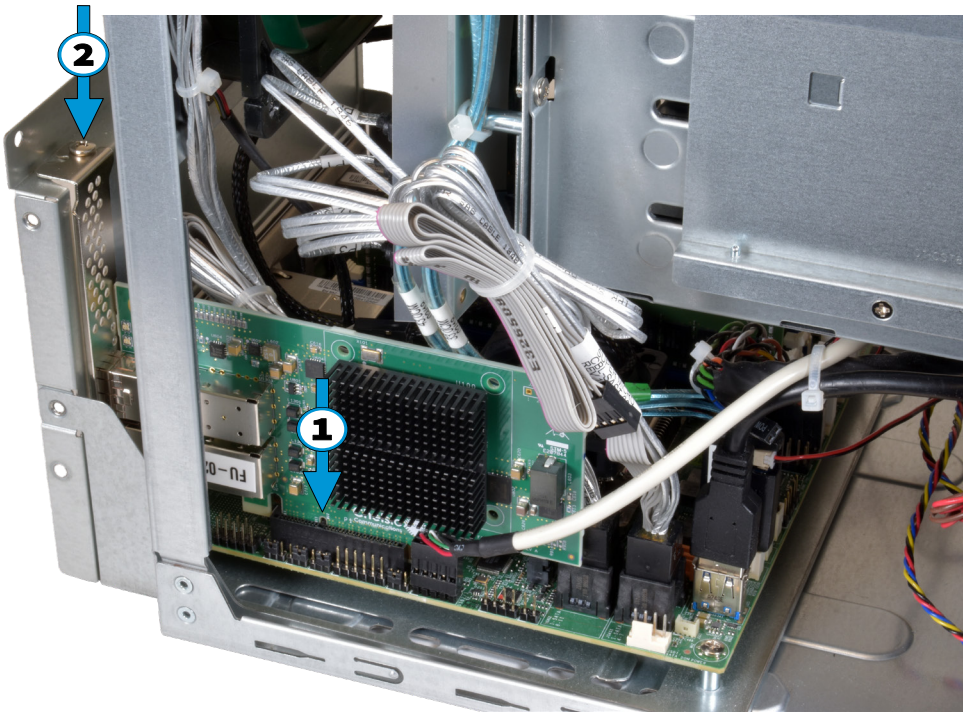
SFP+ modules can have a rubber dust cover. Keep the cover in place until ready to connect a fiber optic cable. To remove the dust cover, pull the dust cover away from the SFP+ module.

5.3 Motherboard Slot Cover Removal

Accessing the network slot cover screw requires pulling the motherboard tray partially out of the chassis (Section **2.3**). It is recommended to pull the tray out just enough to access the slot cover screw and avoid disconnecting any motherboard cabling. With the tray slightly pulled out, remove the slot cover screw from the top of the motherboard back panel. Keep the screw for later use. Slide the slot cover up and away from the motherboard back panel.

5.4 Network Card Installation

Align the network card with the PCIe slot and press down on the center of the card until the gold connectors are firmly seated inside the PCIe slot (**1**). Some of the connectors can extend past the edge of the PCIe slot. Use the previously removed slot cover screw to secure the network card to the back panel (**2**).



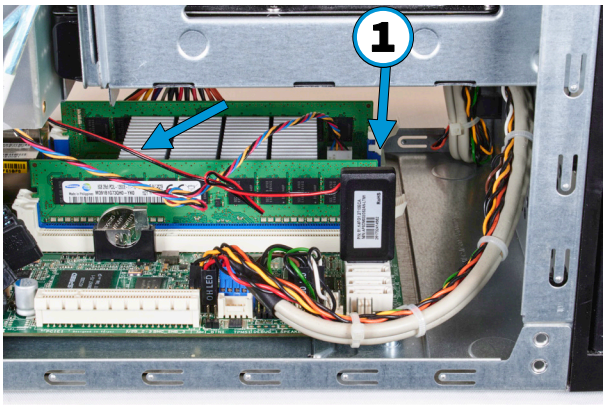
Be sure to resecure the motherboard tray in place (Section **6**).

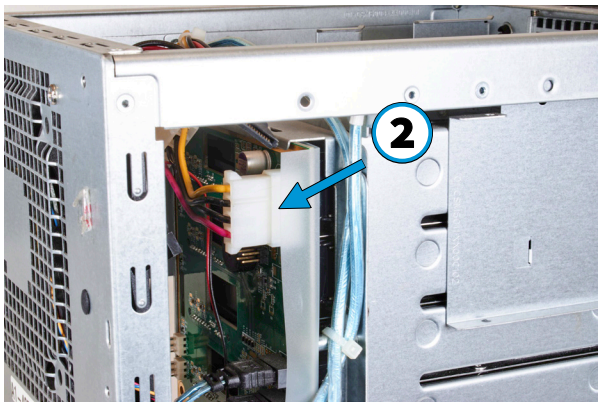
6 Upgrading the Boot Device

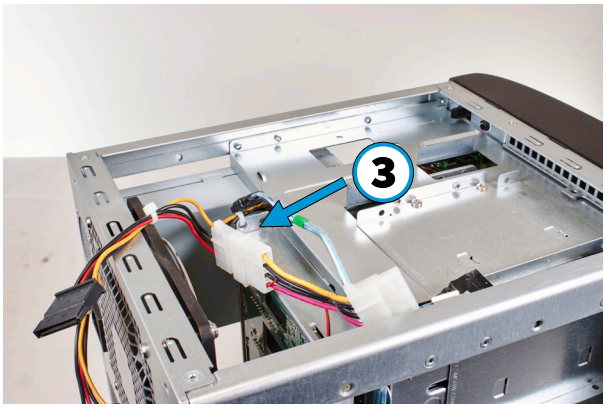
Early Mini XL+ models use a SataDOM boot device. However, this can be swapped out to use a newer M.2 SSD boot device. If the Mini has already been used, make sure to back up the system configuration before swapping boot devices.

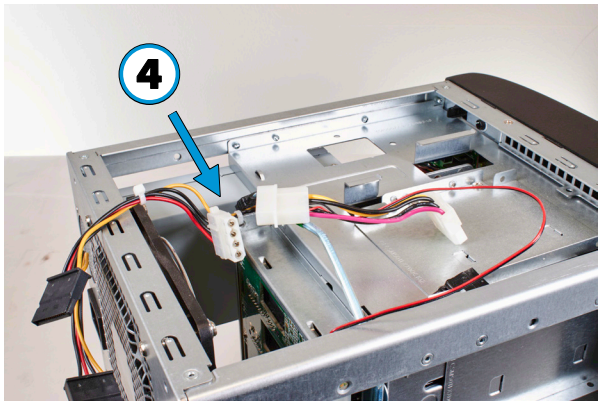
6.1 Remove the SataDOM

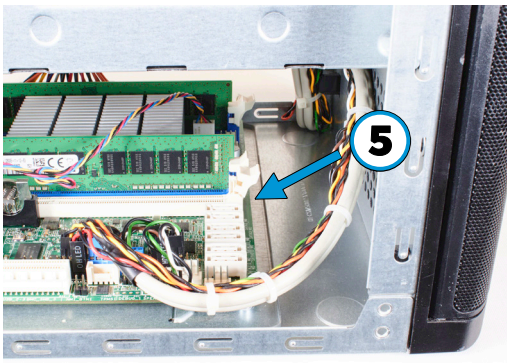
Locate the SataDOM and the connected power cable (**1**). Unplug the Molex plug from the backplane (**2**). Locate the other end of the power cable (**3**). Disconnect the passthrough Molex plug (**4**). Gently squeeze the SataDOM retention clip to remove it and the connected power cable from the system (**5**). The cable might become disconnected from the SataDOM during removal (**6**).

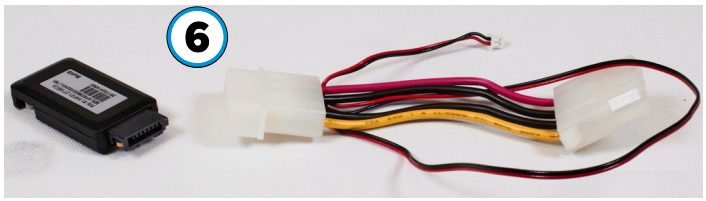






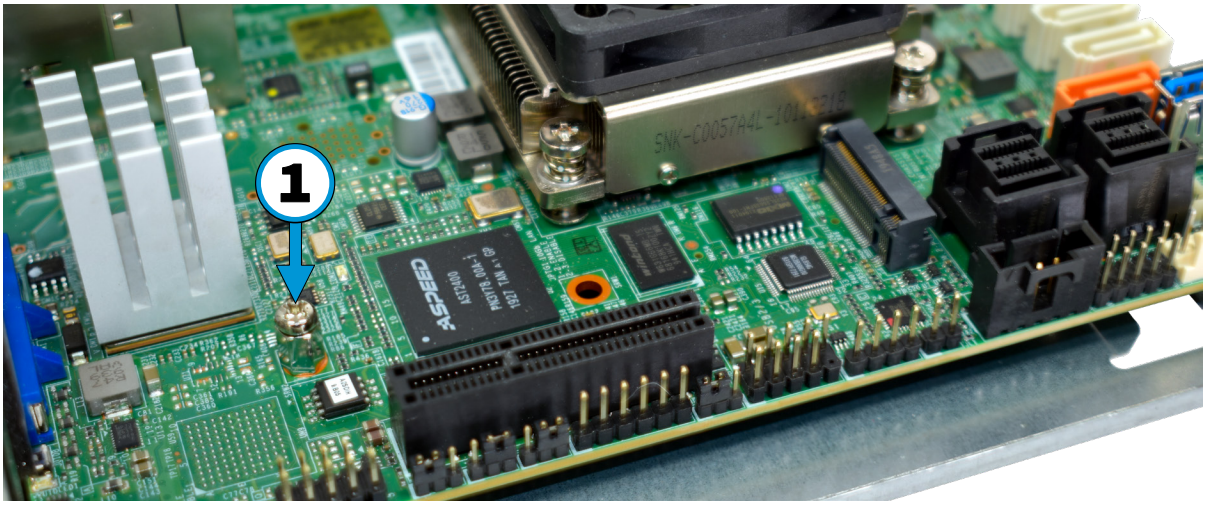


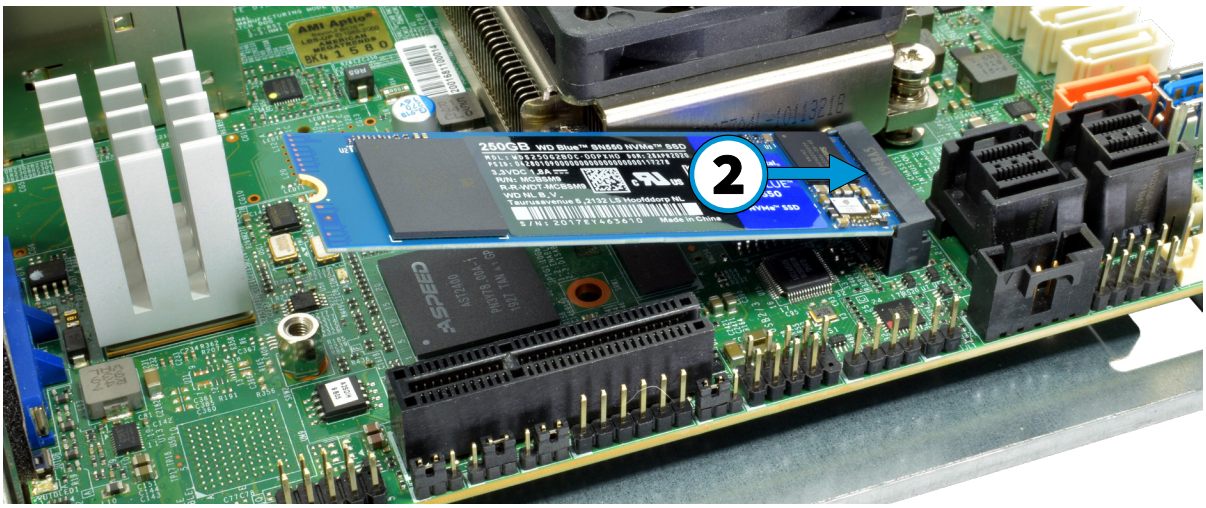




6.2 Install the M.2 SSD

Locate the M.2 SSD port and remove the adjacent screw (**1**). Insert the M.2 SSD into the port (**2**). Press the other end of the M.2 SSD down onto the screw post and secure with the screw (**3**).

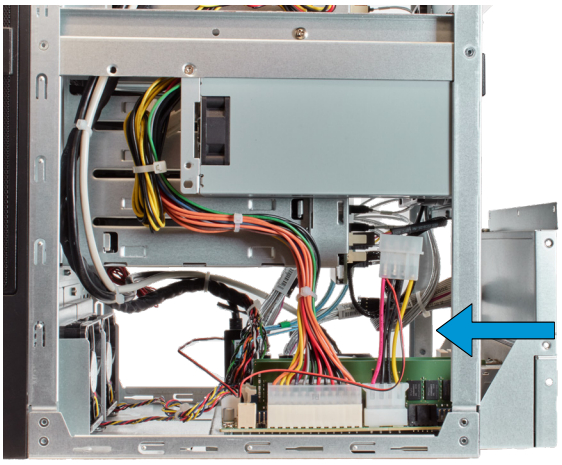


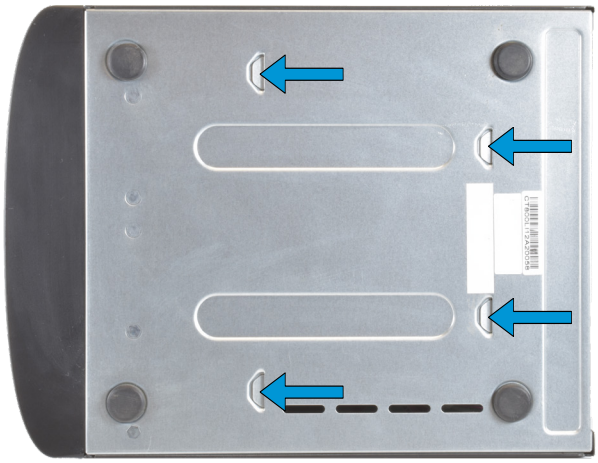


7 Installing the Motherboard Tray

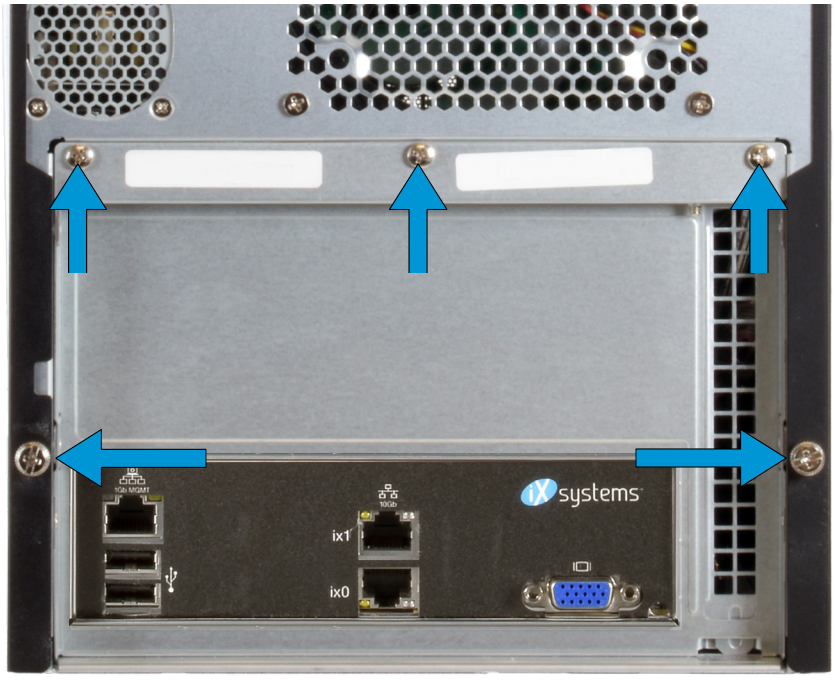
Follow anti-static precautions and ensure all modules and cables are firmly seated in the motherboard before inserting the tray into the system. Some cables might have to be re-attached when the tray is partially inserted into the system. Be very gentle with the tray and cables, taking care not to dislodge any connections or pinch any cables inside the system.

The tray has anchor tabs on the bottom that slide into slots on the bottom of the Mini chassis. Make sure these tabs are aligned with the chassis slots and firmly push the motherboard tray into place. This can take some effort as the tray is designed to fit snugly within the Mini chassis.



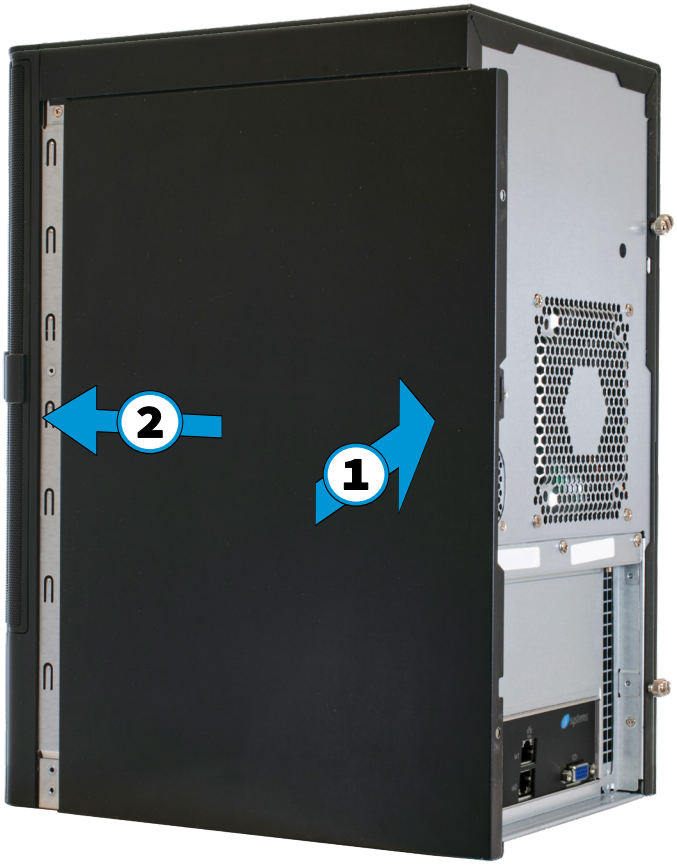


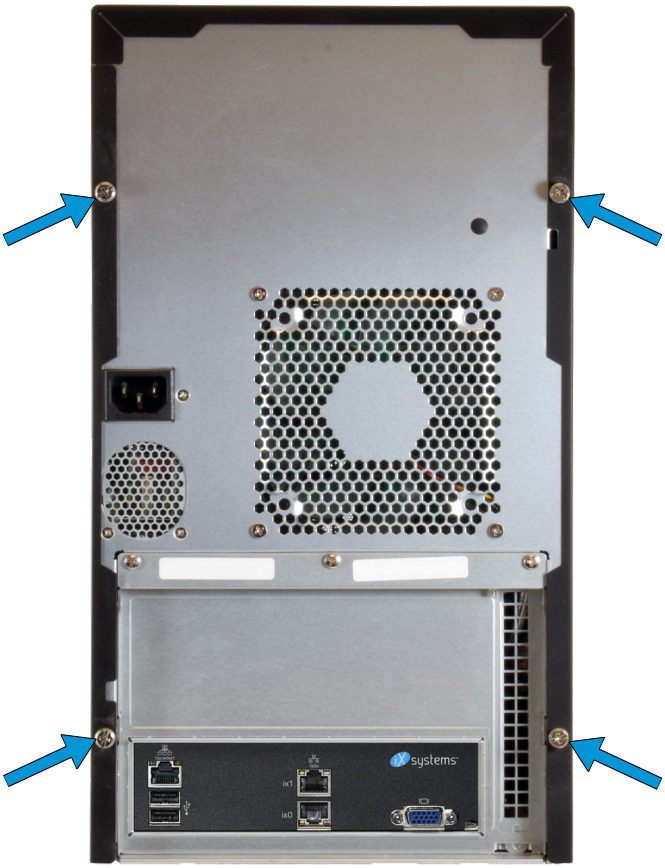
Re-attach the screws on the back of the chassis to secure the motherboard tray in place.



8 Closing the Case

Insert a side panel's tabs into the chassis grooves and slide the panel forward until flush with the front of the system. Replace the thumbscrews in the back to secure the side panel to the chassis. Repeat this process for the other side panel.





9 Additional Resources

The TrueNAS User Guide has complete software configuration and usage instructions. It is available by clicking **Guide** in the FreeNAS web interface or going directly to:

htpps://www.truenas.com/docs/

Additional guides, datasheets, and knowledge base articles are available in the iX Information Library at:

https://www.ixsystems.com/library/

The TrueNAS forums provide an opportunity to interact with other TrueNAS users and to discuss their configurations. The forums are available at:

https://ixsystems.com/community/forums/

10 Contacting iXsystems

For assistance, please contact iX Support:

Contact Method	Contact Options
Web	https://support.ixsystems.com
Email	support@ixsystems.com
Telephone	Monday-Friday, 6:00AM to 6:00PM Pacific Standard Time: • US-only toll-free: 855-473-7449 option 2 • Local and international: 408-943-4100 option 2
Telephone	Telephone After Hours (24x7 Gold Level Support only): • US-only toll-free: 855-499-5131 • International: 408-878-3140 (International calling rates will apply)