

## ***ATTO UL4S/D and UL5D Troubleshooting Guide for Mac OSX***

This document describes troubleshooting techniques that can be used to identify and resolve issues associated with the ATTO Ultra320 SCSI host adapters. Some of these techniques may seem simplistic or overly obvious, but these are the ones that are commonly overlooked and can take several hours of frustration to find. It is important to only try one technique at a time. While changing multiple variables may seem to be a time saver, it usually complicates the troubleshooting process.

### **→ The computer will not boot when the host adapter is installed.**

- The host adapter may be improperly seated. Power down the computer and reseat the host adapter.
- Try putting the host adapter in a different PCI slot.
- Make sure that the adapter, if PCIe, is installed in a slot configured as x4 or x8.
- Zap the PRAM (command+option+P+R) at boot. Allow to chime 3 times.
- Disconnect any SCSI devices from the host adapter and reboot the computer. If this resolves the issue, investigate the SCSI cables or SCSI target devices as described in the section below.
- If the computer still does not boot, try installing the host adapter in a different computer. If the host adapter works in the new computer, report this as a possible interoperability issue between the host adapter and the computer. If the problem follows the host adapter, replace it with a new adapter.
- Verify that the latest version of the computer BIOS is installed. Use caution when updating the computer's BIOS. A mistake could leave the system in an unusable state.

### **→With the ATTO host adapter installed my system stops and displays a flashing question mark.**

- This is an indication that the MAC is not able to find an OS to boot from.
- Use a CD or some other source to boot from and make sure the startup disk is correctly defined in "System Preferences" "Startup disks".
- Check cabling. Make sure cables are secure. Swap out with new cable if possible.
- Check termination.

### **→ The U320 SCSI host adapter is installed in the computer but it does not appear in the System Profiler.**

- The host adapter may be improperly seated. Power down the computer and reseat the host adapter.
- Check for the correct installation of the driver.
- Try putting the host adapter in a different slot.
- Make sure that the adapter, if PCIe, is installed in a slot configured as x4 or x8.

- Remove any non-vital PCI cards from the system to determine if there is a PCI bus conflict.
- Disconnect any SCSI devices from the host adapter and reboot the computer. If this resolves the issue, investigate the SCSI cable or SCSI target devices as described in the section below.
- If the computer still does not boot, try installing the host adapter in a different computer. If the host adapter works in the new computer, try updating the flash on the host adapter as described in the “Installation and Operations” manual. Then try it again in the original computer.
- If it still fails, report this as a possible interoperability issue between the host adapter and the computer.
- If the problem follows the host adapter, replace it with a new adapter.

→ **The Mac freezes or hangs.**

- Disconnect all devices from the SCSI card and reboot the system.

**If the system still freezes:**

- Remove any non-vital PCI cards from the system to determine if there is a PCI bus conflict.
- Remove the SCSI host adapter and test it in a different computer (not the same model).
- If the problem follows the adapter, replace the host adapter with a new one.

**If the system no longer freezes after disconnecting the SCSI devices:**

- Check the SCSI devices to make sure that they are all set to different SCSI ID's. Each device on each SCSI bus must use a unique ID, including the host adapter. Devices on Bus 1 can have the same IDs as those on Bus 2. By default, the host adapter uses SCSI ID 7, so devices should use ID's 0 through 6, or 8 through 15.
- Check cable integrity. Check the cables for solid connections. Make sure they are screwed down. Inspect cable ends for bent pins. U320 SCSI requires high quality cables that are specifically rated for the U320 transmission speeds.
- **Boot into OSX and use the ATTO Configuration Tool to verify the host adapter has its termination set properly. Instructions to do this can be found in the help portion of the ATTO Configuration Tool.**
- Verify the external terminator is the same SCSI type as the devices (certified for Ultra320 SCSI or lower) and does not have damaged pins.
- Try attaching SCSI devices one at a time with different cables, adding drives and cables until the problem occurs. This will help pinpoint the device or cable causing the problem.
- Watch the LED indicators on the SCSI devices before, during, and after startup. Drive lights should also flash at startup as the SCSI bus is scanned. This may give a clue as to the root cause of the issue. If a drive LED remains on when the computer freezes, suspect a problem with that drive.

→ **The system profiler recognizes the U320 SCSI host adapter, but it does not detect any of the connected SCSI devices.**

- Verify the SCSI devices are powered on.
- Check the SCSI devices to make sure that they are all set to different SCSI ID's. Each device on each SCSI bus must use a unique ID, including the host adapter. Devices on Bus 1 can have the same IDs as those on Bus 2. By default, the host adapter uses SCSI ID 7, so devices should use ID's 0 through 6, or 8 through 15.
- Check cable integrity. Check the cables for solid connections. Make sure they are screwed down. Inspect cable ends for bent pins. U320 SCSI requires high quality cables that are specifically rated for the U320 transmission speeds.
- **Boot into the OSX and use the ATTO Configuration Tool to verify the host adapter has its termination set properly.** Instructions to do this can be found in the help portion of the ATTO Configuration Tool.
- Verify the external terminator is the same SCSI type as the devices (certified as usable for Ultra320 SCSI or lower) and does not have damaged pins.
- Try attaching SCSI devices one at a time with different cables, adding drives and cables until the problem occurs. This will help pinpoint the device or cable causing the problem.
- Watch the LED indicators on the SCSI devices before, during, and after startup. Drive lights should also flash at startup as the SCSI bus is scanned. This may give a clue as to the root cause of the issue.
- Try putting the host adapter in a different PCI slot.
- Try updating the firmware on the host adapter as described in the "Installation and Operations" manual.
- If all else fails, replace the SCSI host adapter.

→ **The system profiler recognizes the U320 SCSI host adapter, but only detects connected SCSI devices on one of the busses. The other bus reports no devices.**

- Swap the devices **and cables** from the SCSI bus that appears to be working with the one having issues. If the issue follows the bus, replace the SCSI host adapter.

**If the issue follows the attached SCSI devices, troubleshoot the attached devices:**

- Verify the SCSI devices are powered on.
- Check the SCSI devices to make sure that they are all set to different SCSI ID's. Each device on each SCSI bus must use a unique ID, including the host adapter. Devices on Bus 1 can have the same IDs as those on Bus 2. By default, the host adapter uses SCSI ID 7, so devices should use ID's 0 through 6, or 8 through 15.
- Check cable integrity. Check the cables for solid connections. Make sure they are screwed down. Inspect cable ends for bent pins. U320 SCSI requires high quality cables that are specifically rated for the U320 transmission speeds.
- **Boot into the OSX and use the ATTO Configuration Tool to verify the host adapter has its termination set properly. Instructions to do this can be found in the help portion of the ATTO Configuration Tool.**
- Verify the external terminator is the same SCSI type as the devices (certified as usable for Ultra320 SCSI or lower) and does not have damaged pins.

- Try attaching SCSI devices one at a time with different cables, adding drives and cables until the problem occurs. This will help pinpoint the device or cable causing the problem.
- Watch the LED indicators on the SCSI devices before, during, and after startup. Drive lights should also flash at startup as the SCSI bus is scanned. This may give a clue as to the root cause of the issue.

**→ My scanner does not appear in the Atto Configuration Tool.**

- Verify that the scanner is supported in OSX.
- Contact the scanner manufacture for the latest scanner driver and software.
- Check cabling. Make sure cables are secure. Swap out with new cable if possible.
- Check scanner to make sure that it has a different SCSI ID.
- Check termination.
- Download and install the latest version of firmware and driver for your HBA
- Update the firmware via the latest Atto Configuration Tool. (Please refer to the Read Me for the procedure )
- Reboot the Mac.
- Launch Atto Configuration Tool (available in our downloads section).
- Expand the arrows next to Host>Local Host> ExpressPCIxxx
- Click on the Channel the device is attached to.
- In the 'NVRAM Config' Settings, scroll down to the "SCSI Target NVRAM Configuration' settings.
- Change the 'Specified Target' to the ID of the device.
- The view by default is set to ID0.
- If your device is set to ID3, from the pull down menu, select 3.
- SyncRate. Change this setting to 40/20ST.
- If the scanner is a narrow device, disable wide transfers.
- Click Commit
- Reboot the machine with all devices on.

**→ My Mac kernel panics with the U320 SCSI host adapter installed and SCSI devices attached.**

- Check cable integrity. Check the cables for solid connections. Make sure they are screwed down. Inspect cable ends for bent pins. U320 SCSI requires high quality cables that are specifically rated for the U320 transmission speeds
- Verify the external terminator is the same SCSI type as the devices (certified as usable for Ultra320 SCSI or lower) and does not have damaged pins.
- Verify the correct driver is installed.

**If problem still persists:**

- Disconnect SCSI cables.
- Try attaching SCSI devices one at a time with different cables, adding drives and cables until the problem occurs. This will help pinpoint the device or cable causing the problem.

- Try swapping in a different U320 rated terminator.
- If all else fails, replace the SCSI host adapter.

→ **The U320 SCSI host adapter is detected by the operating system, it detects some of the connected devices on both SCSI busses, but does not detect all of the connected devices.**

- Verify the SCSI devices are powered on.
- Check the SCSI devices to make sure that they are all set to different SCSI ID's. Each device on each SCSI bus must use a unique ID, including the host adapter. Devices on Bus 1 can have the same IDs as those on Bus 2. By default, the host adapter uses SCSI ID 7, so devices should use ID's 0 through 6, or 8 through 15.
- Check cable integrity. Check the cables for solid connections. Make sure they are screwed down. Inspect cable ends for bent pins. U320 SCSI requires high quality cables that are specifically rated for the U320 transmission speeds.
- **Boot into the OSX and use the ATTO Configuration Tool to verify the host adapter has its termination set properly. Instructions to do this can be found in the help portion of the ATTO Configuration Tool.**
- Verify the external terminator is the same SCSI type as the devices (certified as usable for Ultra320 SCSI or lower) and does not have damaged pins.
- Try attaching SCSI devices one at a time with different cables, adding drives and cables until the problem occurs. This will help pinpoint the device or cable causing the problem.
- Watch the LED indicators on the SCSI devices before, during, and after startup. Drive lights should also flash at startup as the SCSI bus is scanned. This may give a clue as to the root cause of the issue.

→ **Errors are reported while trying to flash new firmware onto the SCSI host adapter.**

- The ATTO Configuration Tool performs validations on the structure of the file. If it does not pass these validations, the file is rejected. The image file may be corrupted. Try downloading the image file from the support section of the website again.

→ **The software application being used to communicate with the attached SCSI devices reports communication errors.**

- Check your cables. There could be slight damage to one conductor causing intermittent failures. U320 SCSI requires high quality cables that are specifically rated for the U320 transmission speeds.
- Try slowing down the data transmission rate by lowering the sync rate for the drive in question. To do this, launch the ATTO Configuration Tool. Double click on the drive you want to change. The current sync rate will be displayed. Lower it then click on commit and reboot. If this resolves the issue, the SCSI device may need to be replaced.

- If the issue is not resolved, enable the Event logs as described below and contact ATTO Technical Support.

→ **Errors are reported while using the ATTO Configuration Tool.**

**Note:** Sometimes when using the ATTO Configuration Tool, an error message describing an unexpected event or incorrect information discovered by the application will be displayed.

- Use the help text presented with the error message to correct the issue.

**The following conditions cause a warning or error message to be posted in the "Status" area of the configuration utility. These messages will be shown in red.**

- *An error occurred loading NVRAM data* - The first time a host adapter channel is highlighted, the application makes an attempt to read NVRAM from the card. If the size of the NVRAM buffer does not match the expected size, or if the NVRAM buffer couldn't be retrieved at all, this message is displayed.
- *Warning: NVRAM could not be read, defaults returned* - This message occurs as a result of corrupt NVRAM. When the driver accesses the NVRAM, a continuity check is performed on the NVRAM to ensure the returned data is valid. If this check fails, the driver has no other alternative than to return a known NVRAM data buffer that represents card defaults. When this situation occurs the defaults are presented via the graphical user interface and the user is informed that the values shown are defaults. These defaults must be committed in order to correct the state of the NVRAM.
- *An error occurred updating the NVRAM* - This message occurs during a committal of NVRAM to the card. If the driver is unable to put the new settings on the card, this message is displayed to the user and no changes are made to the card.
- *This is not a flash file, or it is corrupt* – Checks are performed to assure the proper file has been selected for flashing to the specific model of host adapter.

**C.) Error Log Capabilities**

**The ATTO Ultra320 SCSI host adapter driver logs all failure related information to an event log.**

The driver records events broken into the following classifications.

- **FATAL**           Records various fatal situations within the driver and card.
- **SCSI**            Records SCSI errors as reported by the card.
- **ISP**             Records errors as reported by the firmware of the card.
- **LOOP**           Records event notifications as reported by the firmware.
- **INFO**           Records events related to the starting and restarting of the driver.

We recommend Event Logging only be active for troubleshooting purposes as performance will be affected and that when in this mode of operation, all flags be enabled.

To enable the advanced event logging features of the ATTO U320 Dual Channel SCSI Host Adapter in a **MAC** environment, please do the following:

- Open a Terminal window.
- At the prompt, enter the following command:  
`sudo nvram atto-args-u320="0xffffffff"` (note: there are eight f's)  
 If you are not the root user, you will be prompted for an administrator password.
- Reboot the system for the changes to take effect.

Advanced event logging is now enabled. To retrieve the log to provide to support personnel please save the terminal output or use standard redirection when starting ATTOExpressPCI4Log to save the output to a file.

**D.) Escalating issues to Tech Support.**

When an error is encountered, please insure you have an answer to each of the following questions when reporting it as an issue:

QUESTION	ANSWERED
1. Computer Model:	
2. Operating System:	
3. OS Patch Level:	
4. PCI or PCIe slot # and type:	
5. ATTO driver version:	
6. ATTO firmware revision:	
7. List all of the devices attached to the ATTO HBA. Include the manufacturer and model number for each device:	
8. Did it ever work? Is this a new error that just started happening, or is this an error that has been around since the first use.	

9. Does it happen when you try it with a second host adapter (if possible)? For example, swap out one host adapter for another and see if error still occurs.	
10. Is the latest firmware and driver being used?	
11. Is the device in default mode? Are there settings that have been adjusted that may be causing the problem? Do settings need to be adjusted to allow the device to function properly?	
12. How duplicable is the error? Does the error occur sporadically/randomly, or can it be reproduced each and every time?	
13. If the system was working previously, what changed about the configuration?	