



AOC-S3808L-L8iR



User's Guide

Revision 1.0b

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User's Guide Revision 1.0b

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Revision History

Rev. 1.0a, January 18th, 2024

- Initial document release

Rev. 1.0b, February 2nd, 2024

- Language fine-tuned with up-to-date product notes

Preface

About this User's Guide

This user's guide is written for system integrators, IT technicians, and knowledgeable end users. It provides information for the installation and use of the AOC-S3808L-L8iR expansion card.

About this Expansion Card

The Supermicro SAS AOC-S3808L-L8iR internal RAID controller card features eight internal SAS3 ports with one internal SlimSAS connector. It utilizes a SAS 3808 SAS3 controller chip and features a 1.6 GHz processor. This add-on card supports eight SAS/SATA devices or two NVMe devices. This RAID adapter delivers intelligent RAID 0, 1, and 10. The AOC-S3808L-L8iR is streamlined to meet the growing demand for increased data throughput and scalability requirements across enterprise-class server platforms. It is a low-power and cost-effective near-line storage solution that delivers maximum performance and reliability.

An Important Note to the User

All images and layouts shown in this user's guide are based upon the latest PCB revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this user's guide.

Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning the AOC-S3808L-L8iR card to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and the shipping package is mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete. For faster service, you can also request an RMA authorization online <http://www.supermicro.com/RmaForm/>.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alternation, misuse, abuse, or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

Conventions Used in the User's Guide

Pay special attention to the following symbols for proper system installation and for safety instructions to prevent damage to the system or injury to yourself:



Warning: Important information is given to ensure proper system installation or to prevent damage to the components or injury to yourself.



Note: Additional information is given for proper system setup.

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Chapter 1

Overview

1-1 Overview

Congratulations on purchasing your expansion card from an acknowledged leader in the industry. Supermicro products are designed with the utmost attention to detail to provide you with the highest standards of quality and performance. For product support and updates, please visit our website at <https://www.supermicro.com/>.

1-2 Technical Specifications

General

- One SlimSAS x8 white (85-Ohm) connector interface
- Supports up to eight SAS/SATA physical devices or two NVMe physical devices
- Processor at 1.6 GHz
- Supports 3.0, 6.0, and 12.0 Gb/s SAS data transfer rates, 3.0 and 6.0 Gb SATA, and NVMe Gen 4 (16 GT/s) and Gen 3 (8 GT/s) PCIe
- Supports MCTP over PCIe/I2C
- Supports BMC-enabled management
- Supports MegaRAID® SafeStore Software (Included)
- UEFI Configuration utility
- Supports Hardware Secure Boot
- Thermal operating range: System dependent (55°C or higher with enough airflow)

OS Support

Windows, Linux, and VMWare

Power Consumption

10.8 watts (max) for AOC-S3808L-L8iR

Physical Dimensions

Card PCB dimensions: 5.11" x 2.71" (L x H)



Note:

-
-
1. When a system with IOMMU or VT-d enabled is configured with an iMR controller-based storage add-on-card/module, please make sure the system BIOS supports either IVMD (AMD-based system) or RMRR (Intel-based system) for the iMR controller to work seamlessly with host memory.

Chapter 2

Hardware Components

2-1 Controller Card Layout and Components



Figure 2-1. AOC-S3808L-L8iR

The AOC-S3808L-L8iR is a low-profile SAS controller card with eight internal SAS3 ports and one SlimSAS x8 connector. The following pages describe the components and settings for the AOC-S3808L-L8iR.

2-2 Major Components

The following are the major components that make up the AOC-S3808L-L8iR controller card:

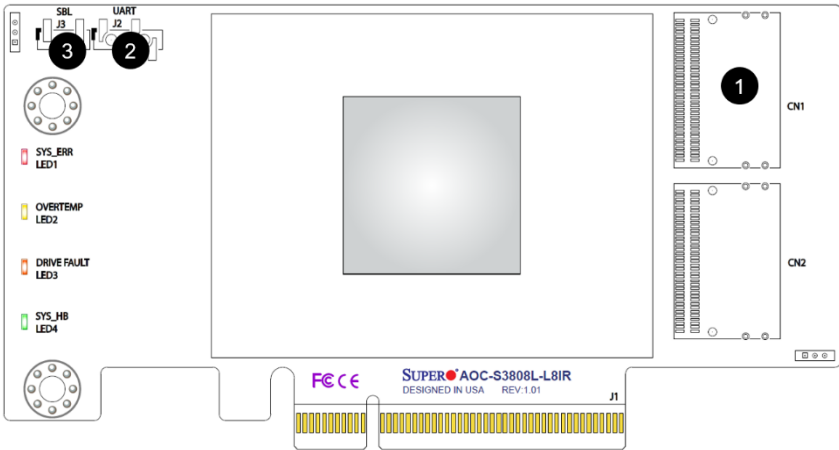


Figure 2-2. AOC-S3808L-L8iR Front Layout

AOC-S3808L-L8iR Major Components	
Component	Description
1	SAS Connectors SAS 0-7
2	UART Jumper, for engineering debug
3	Serial Boot Loader Jumper, for engineering test

2-3 Front Connectors

SAS Connectors

There is one SlimSAS x8 connector on the AOC-S3808L-L8iR controller card with eight ports to support data transfers. For SAS devices, the ports support data transfer rates of 12, 6, and 3 Gb/s per lane. For SATA devices, the ports support data transfer rates of 6 and 3 Gb/s. This card also provides two ports that support data transfer rates of 16.0, 8.0, 5.0, and 2.5 GT/s for NVMe devices.

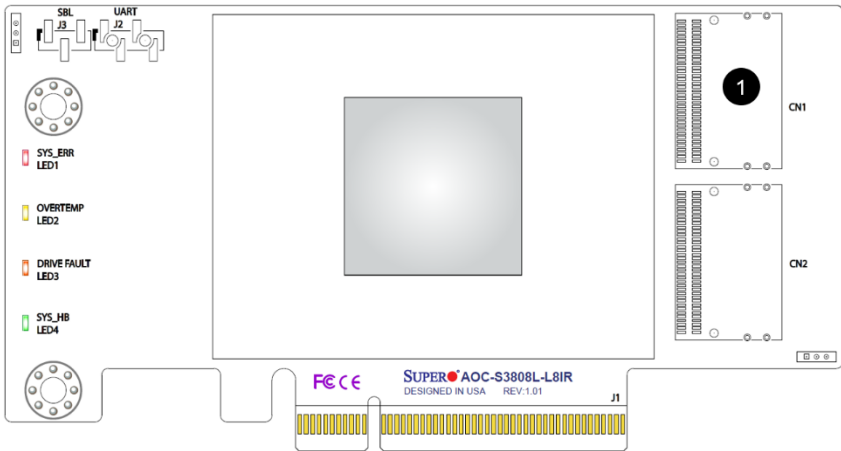


Figure 2-3. Front SAS3 Connectors and LED

AOC-S3816L-L16iR/AOC-S3808L-L8iR Front Connectors and LED	
Component	Description
1	SAS Connectors SAS 0-7

2-4 Front Jumper and Header Positions

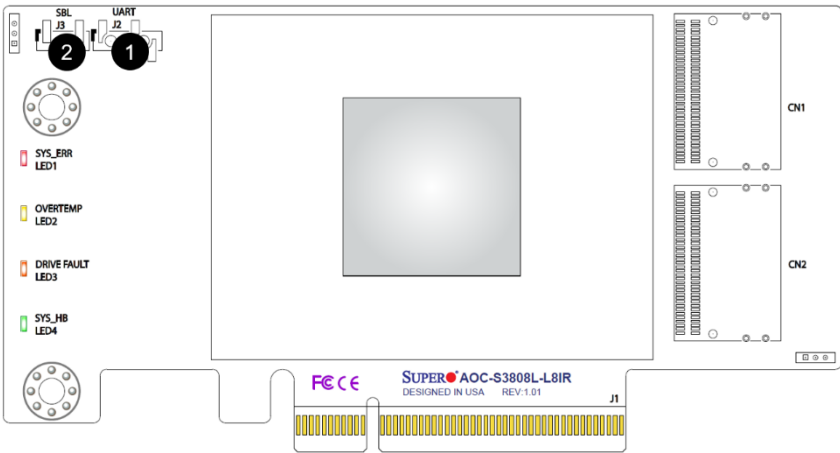


Figure 2-4. Headers Positions

AOC-S3808L-L8iR Front Jumper and Headers		
Header	Description	Purpose
1	Debug Header, designated UART0, J3	For Engineering Debug
2	Boot Loader Header, designated SBL_DIS, JP2	For Engineering Debug

2-5 LEDs

System Error LED

A solid red LED indicates a system error has occurred.

Overtemp LED

A solid yellow LED indicates the controller card has overheated.

Drive Fault LED

A blinking orange LED indicates a drive error has occurred.

Heartbeat LED

A blinking green LED indicates the firmware is running on the controller chip.

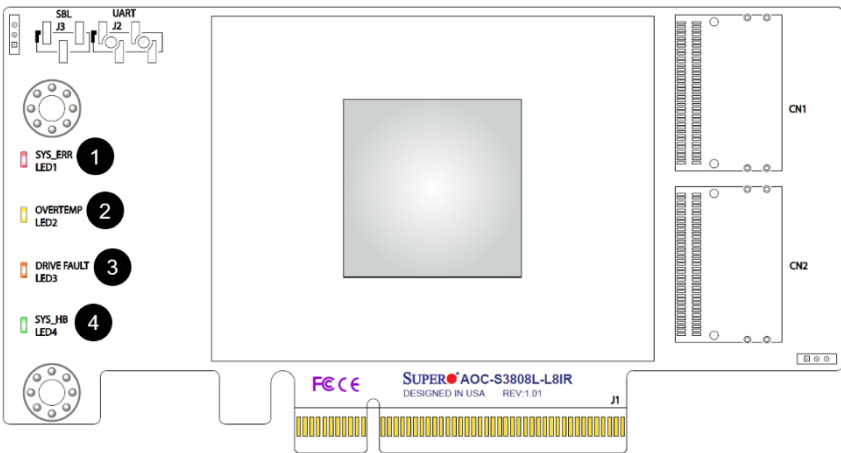


Figure 2-5. LEDs

AOC-S3816L-L16iR/AOC-S3808L-L8iR LEDs		
Component	Color	Description
LED1	Red	System Error LED
LED2	Yellow	Overtemp LED
LED3	Orange	Drive Fault LED
LED4	Green	Heartbeat LED

Chapter 3

Installation

3-1 Static-Sensitive Devices

Electrostatic Discharge (ESD) can damage electronic components. To avoid damaging your controller card, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing the controller card from the antistatic bag.
- Handle the controller card by its edges only; do not touch its components or peripheral chips.
- Put the controller card back into the antistatic bags when not in use.
- For grounding purposes, make sure that your system chassis provides excellent conductivity between the power supply, the case, the mounting fasteners, and the controller card.

Unpacking

The controller card is shipped in antistatic packaging to avoid static damage. When unpacking your component, make sure you are static protected.



Note: To avoid damaging your components and to ensure proper installation, be sure to always connect the power cord last, and always remove it before adding, removing, or changing any hardware components.

3-2 Before Installation

To install the controller card properly, follow the steps below.

Prior to Installation

1. Power down the system and unplug the power cord.
2. Use industry-standard anti-static equipment (such as gloves or wrist strap) and follow the precautions on page 3-1 to avoid damage caused by ESD.

3-3 Installing the Controller Card

Depending upon which system configuration is used, a riser card may or may not be required to install the AOC-S3808L-L8iR.

Installing the Controller Card

1. Power down the system, remove the power cords from the rear of the power supply, and remove the system cover.
2. Verify that your controller card is equipped with the correct length of PCIe slot mounting bracket for your system. The AOC-S3808L-L8iR controller card includes a low-profile PCIe mounting bracket. However, if your system features full-height PCIe slots, replace the low-profile bracket with a full-height bracket.
3. Insert the controller card into a PCIe x8 slot.
4. Connect the SAS interface cables from the controller card to either the direct-attached storage target devices or the cable sockets on the backplanes.
5. The cable latch will click into the locked position when connected properly.
6. Replace the system cover, plug in the power cord, and power up the system.

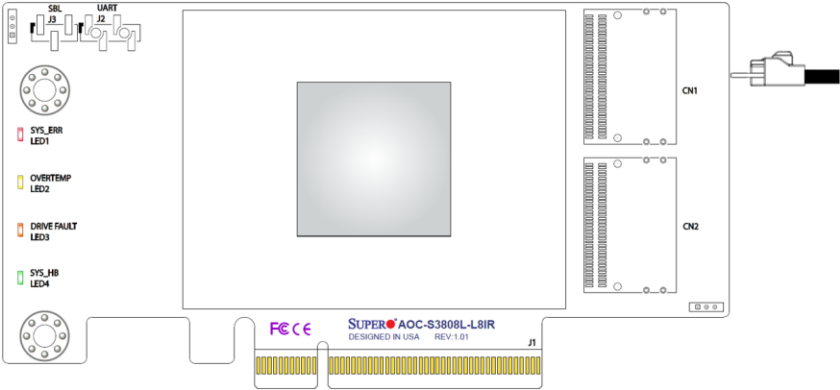


Figure 3-1. Connecting the Cables

3-5 Installing the Drivers in Windows

Refer to the instructions that came with your controller card and follow the manufacturer's recommended steps for installing the NVMe driver. Download the latest drivers from the Supermicro project board at <https://www.supermicro.com/wdl/driver/SAS/Broadcom/3808-3816/Driver/>.

3-6 Uninstalling the Drivers

To Uninstall the Drivers in Windows:

Follow the system driver uninstall procedure in the operating system.

Chapter 4

Configuring the BROADCOM® 3808 iMR Settings

This chapter provides instructions on how to configure RAID using the BROADCOM <SAS 3808> Configuration Utility. If you do not wish to configure RAID settings, skip this section and go directly to OS installation.

4-1 RAID Minimum Drive Requirements

The AOC-S3808L-L8iR supports up to eight SAS/SATA physical devices or two NVMe physical devices with RAID 0, RAID 1, and RAID 10

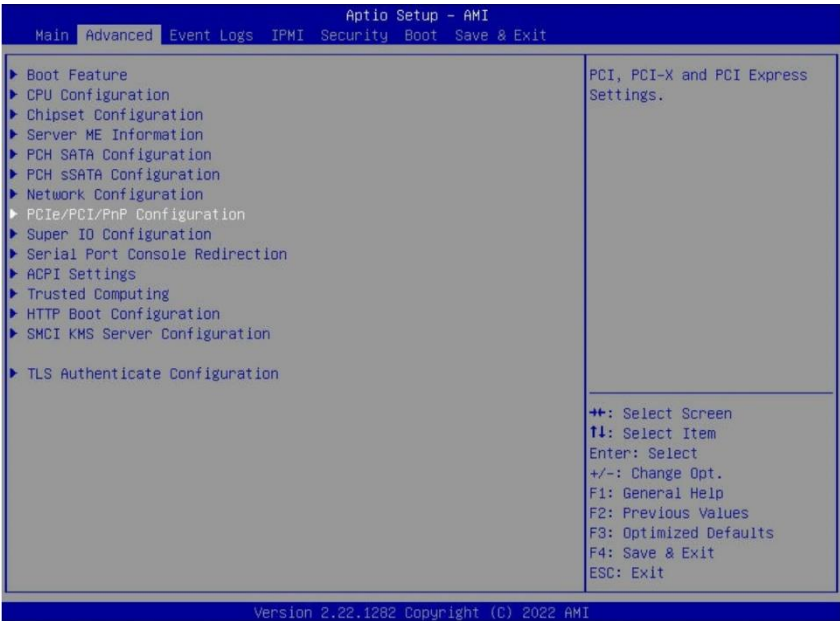
RAID	Minimum Hard Drives
RAID 0	2
RAID 1	2
RAID 10	4

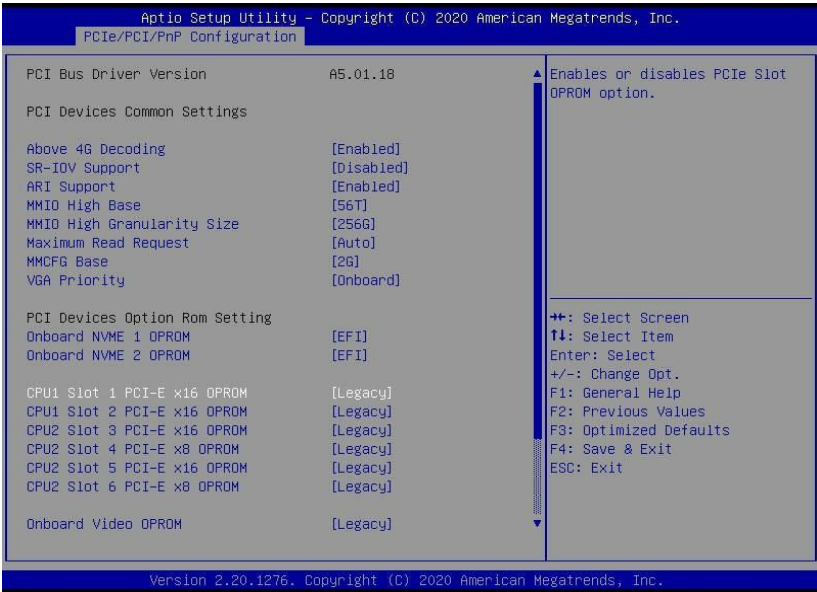
4-2 Using the BROADCOM <SAS 3808> Configuration Utility

Follow the steps below to use the BROADCOM <SAS 3808> Configuration Utility.

1. Reset the system.

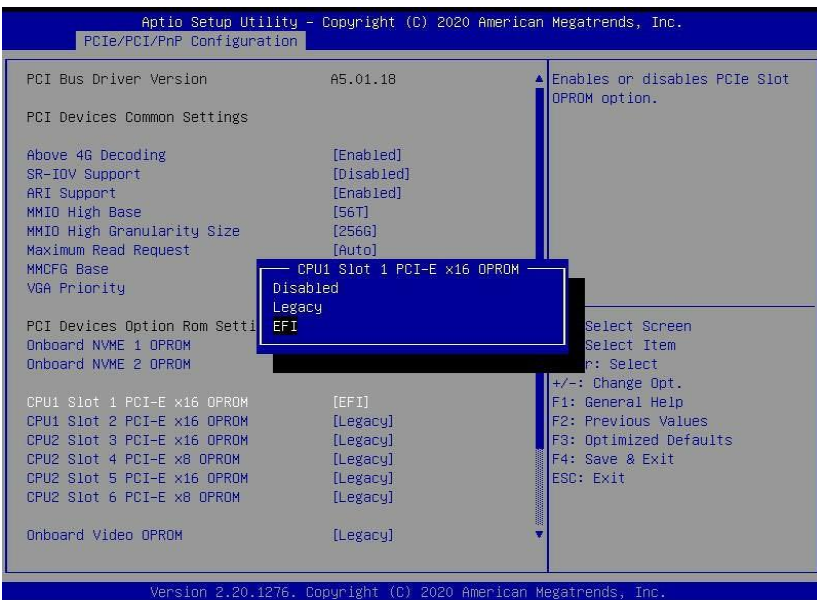
2. Press to enter the **BIOS Setup Utility**. AOC-S3808L-L8iR only supports **UEFI** mode and a very limited legacy mode. If the **BROADCOM <SAS 3808> Configuration Utility** option is not visible, select **PCIe/PCI/PnP Configuration** and then a CPU slot.

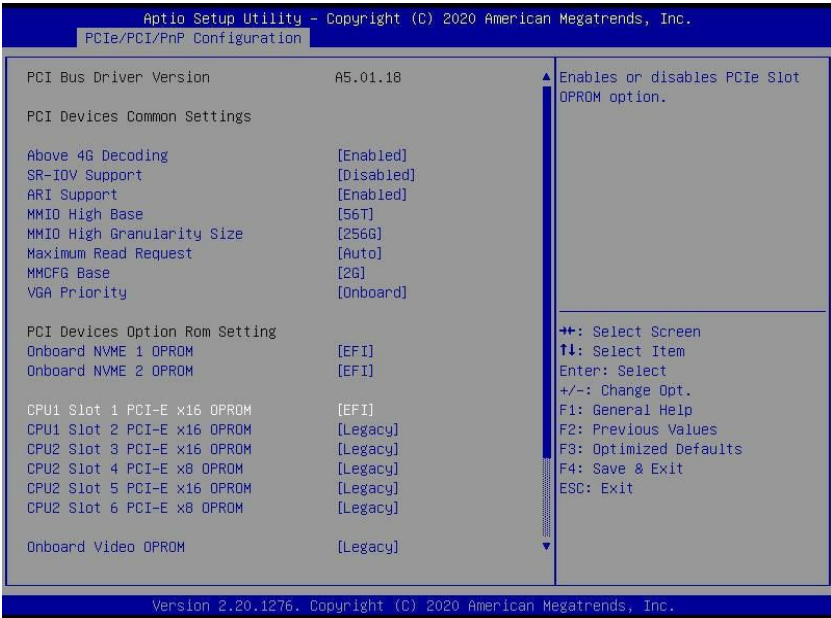




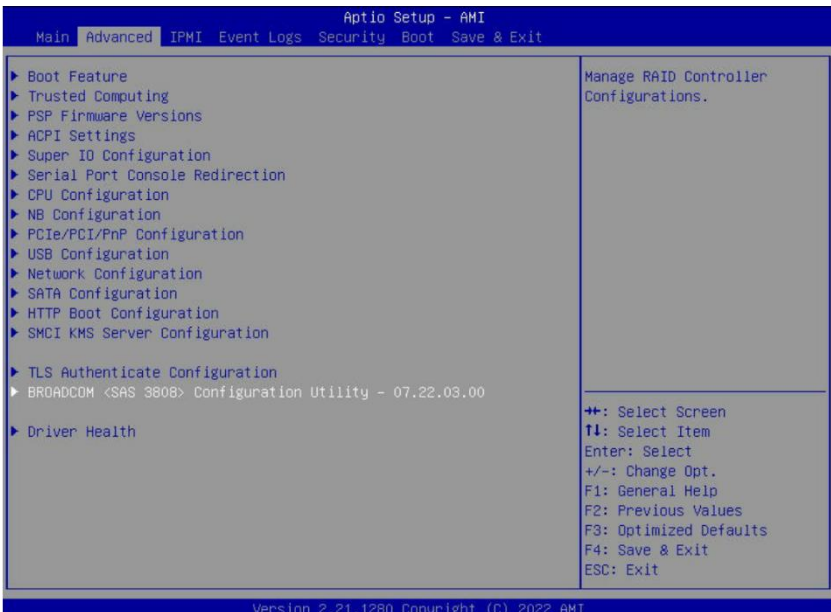
CPU1 Slot 1 PCI-E X16 OPROM Selected

- When the below screen appears, select **EFI** mode, then press **<F4>** to save and exit.

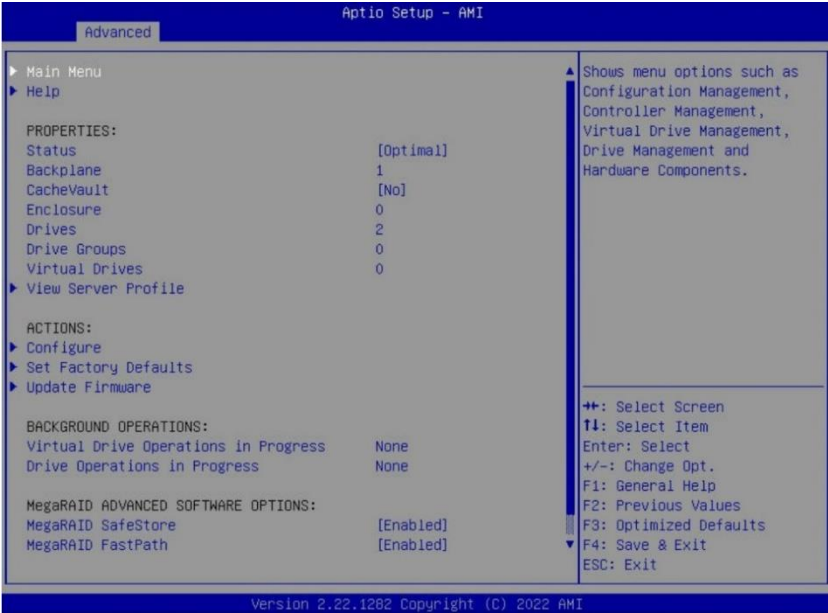




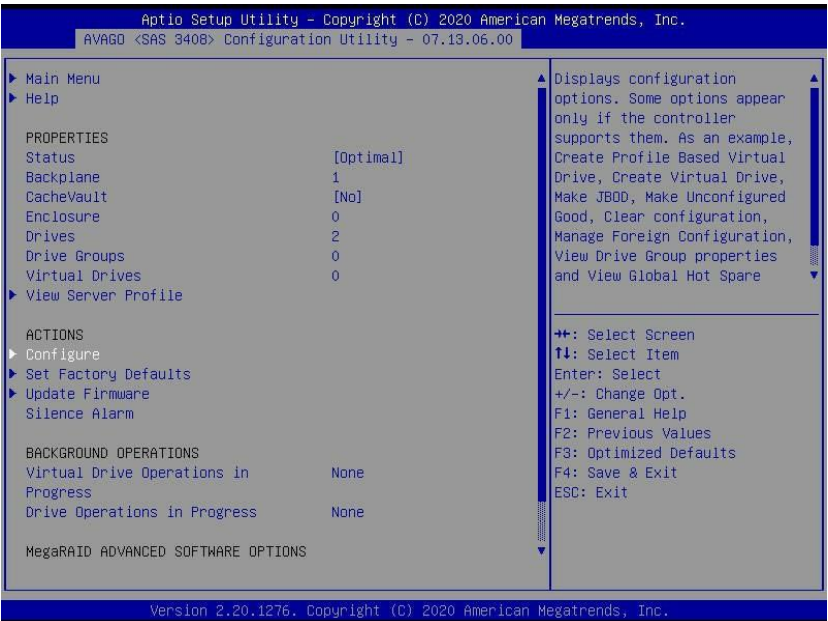
4. Press **<ESC>** to reach the **Advanced** tab, then select **BROADCOM <SAS 3808> Configuration Utility** and press **<Enter>**.

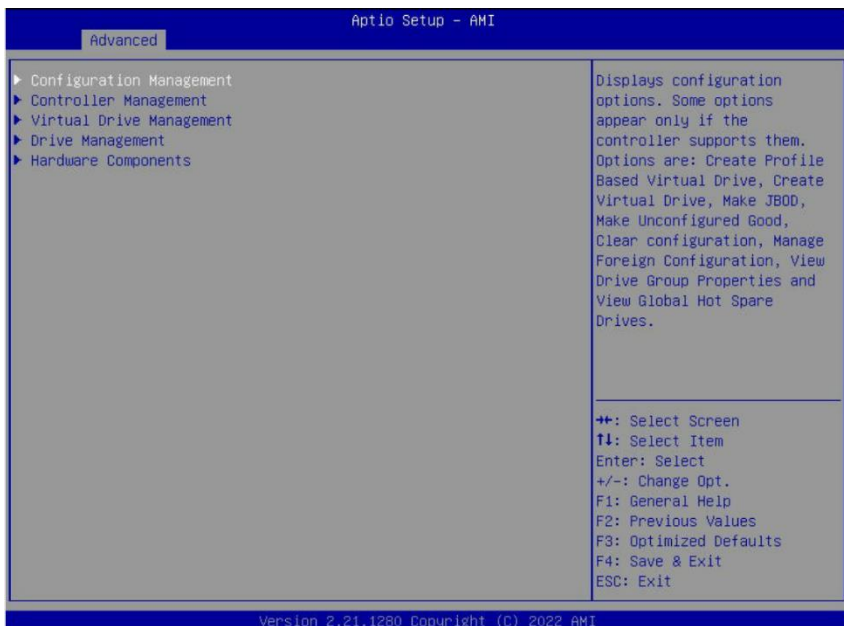


5. Enter **Main Menu** page.

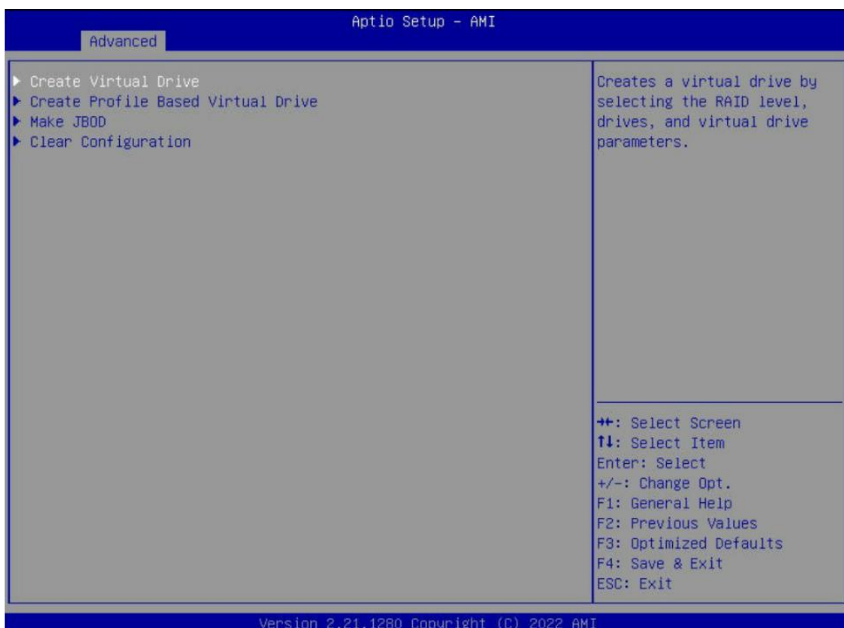


6. Select **Configure** from the Main Menu submenu.

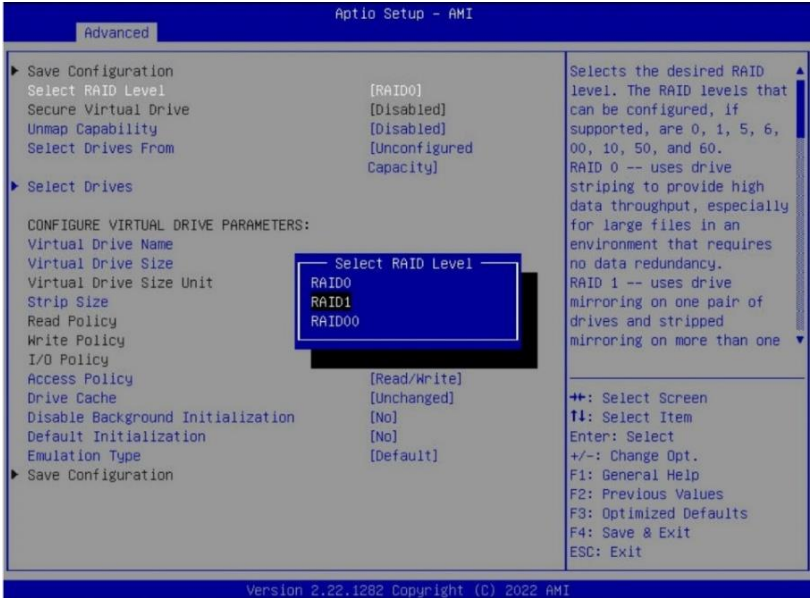




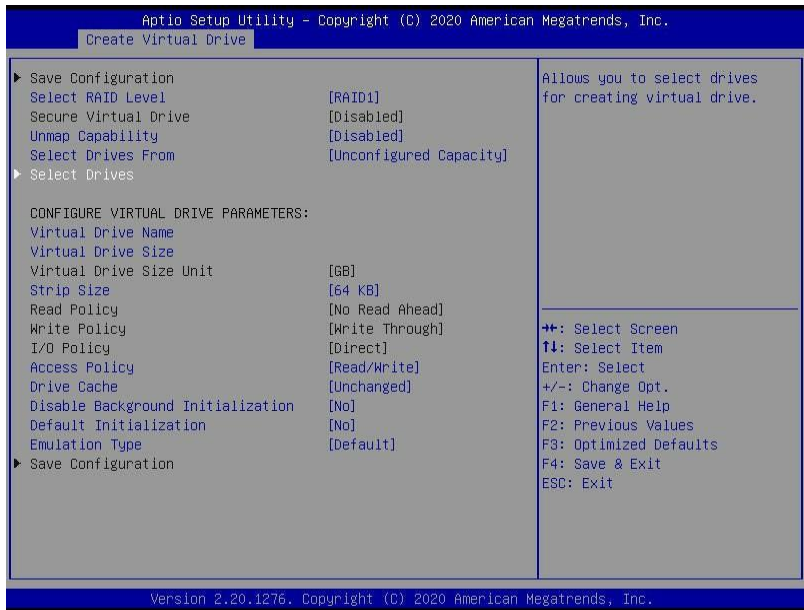
7. Select **Create Virtual Drive** and press **<Enter>**.



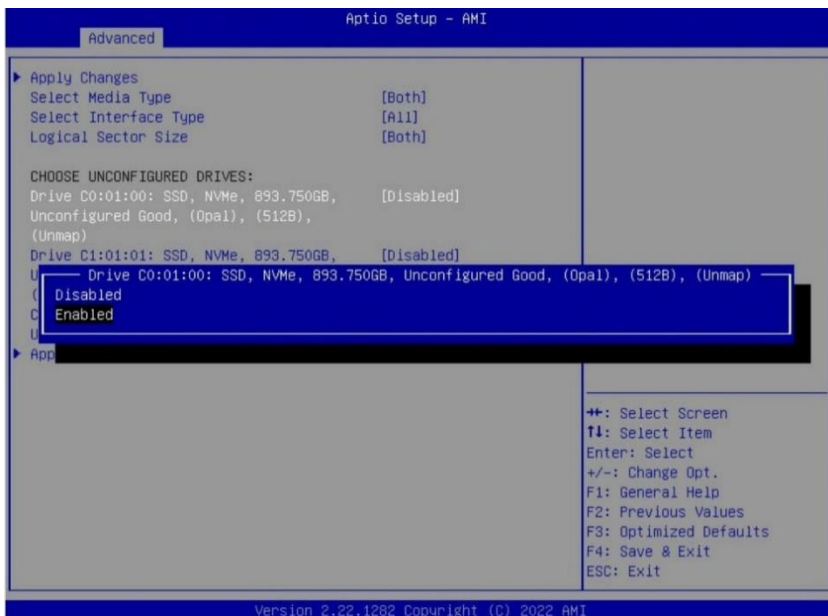
8. On the Create Virtual Drive menu, navigate to **Select RAID Level** and press **<Enter>**. Use the arrow keys to select a RAID level and press **<Enter>**.



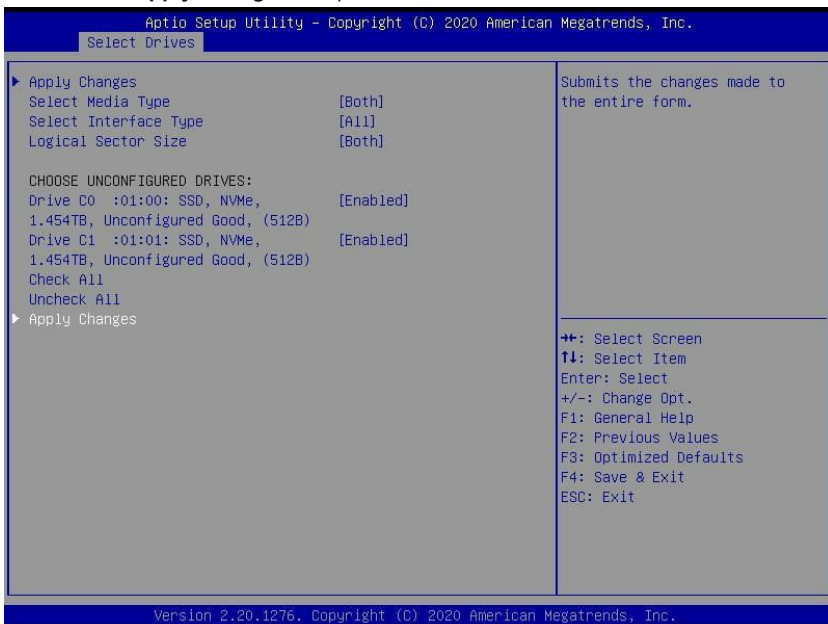
9. Navigate to **Select Drives**, as shown below, and press **<Enter>**.

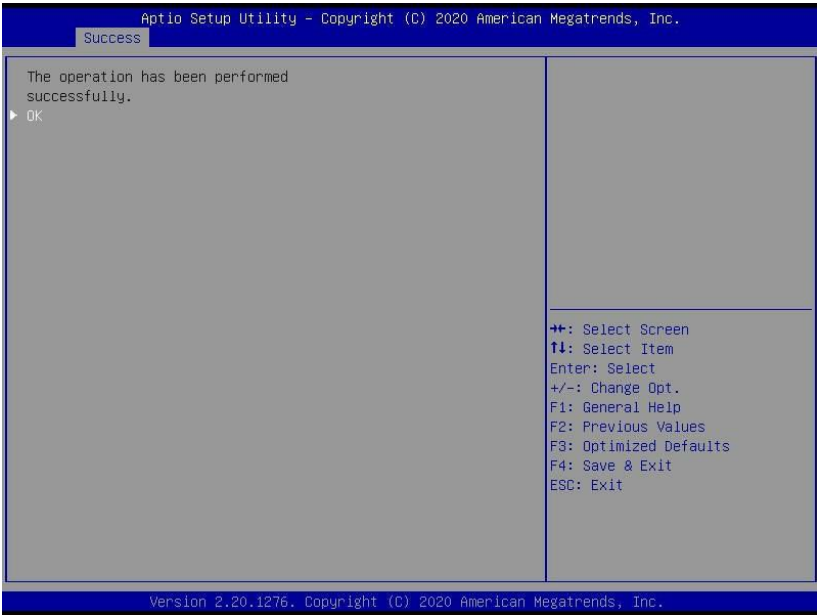


10. On the Select Drives menu, select the unconfigured drives and choose **Enabled**.

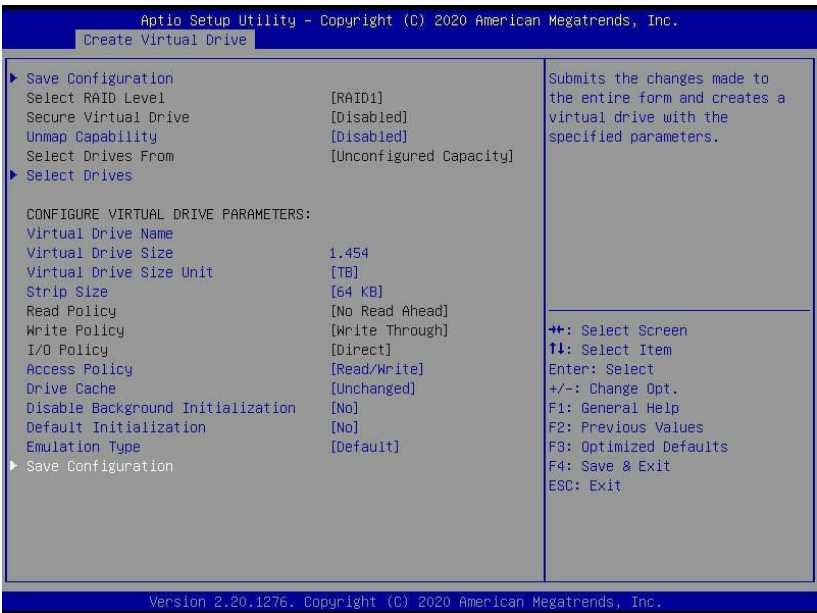


11. Select **Apply Changes** and press **<Enter>**.

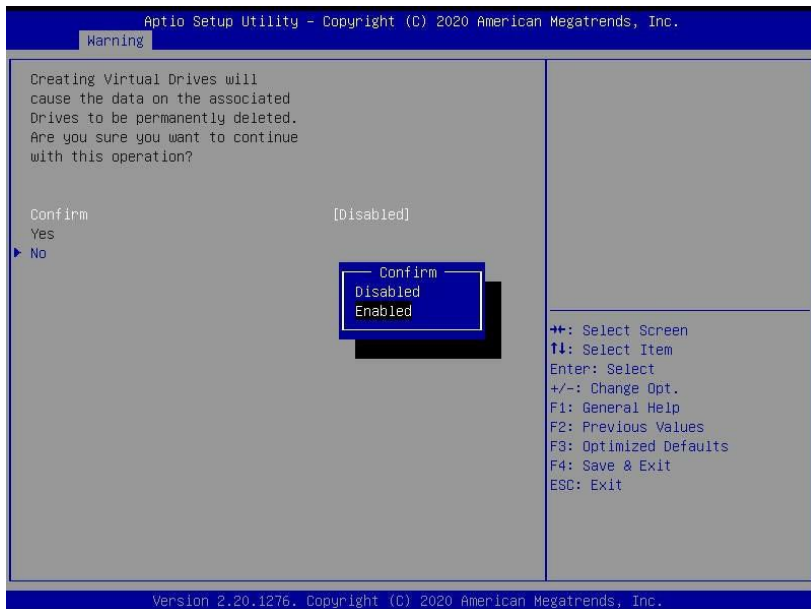




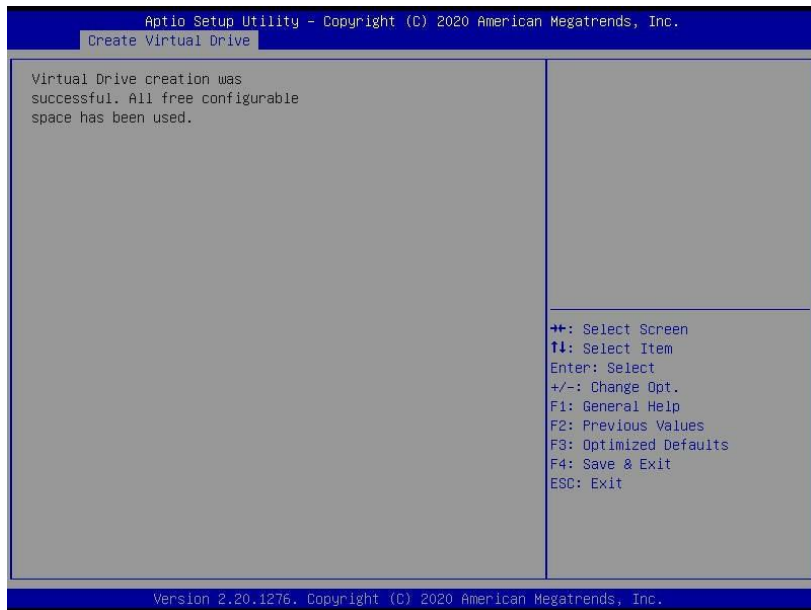
12. Press **<ESC>** to exit to the **Create Virtual Drive** menu. There, navigate to **Save Configuration** and press **<Enter>**.



13. Select the **Yes** option and then confirm **Enabled**.



14. The below screen appears once Virtual Drive creation is successful.

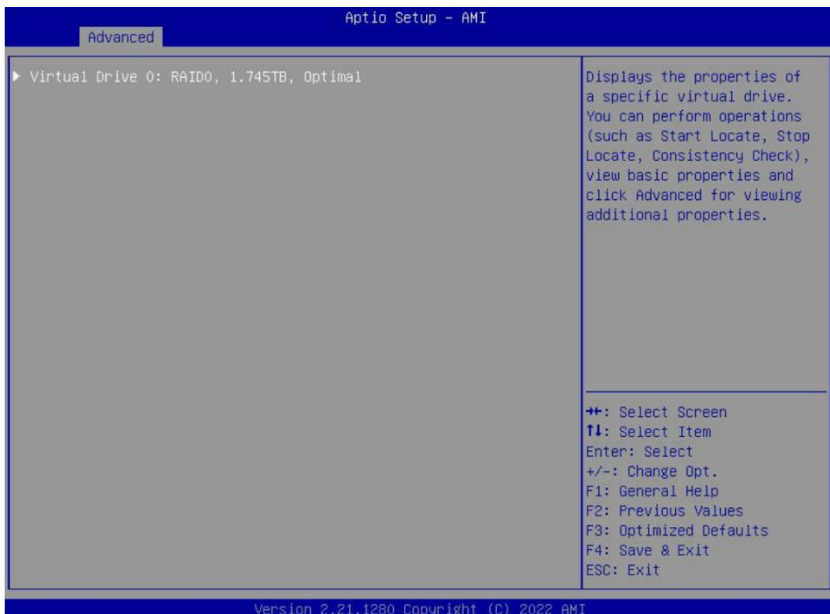


After completing the steps to use the BROADCOM <SAS 3808> Configuration Utility, there are a few optional actions or screenshots that you can observe, act on, or simply ignore. These options include the following:

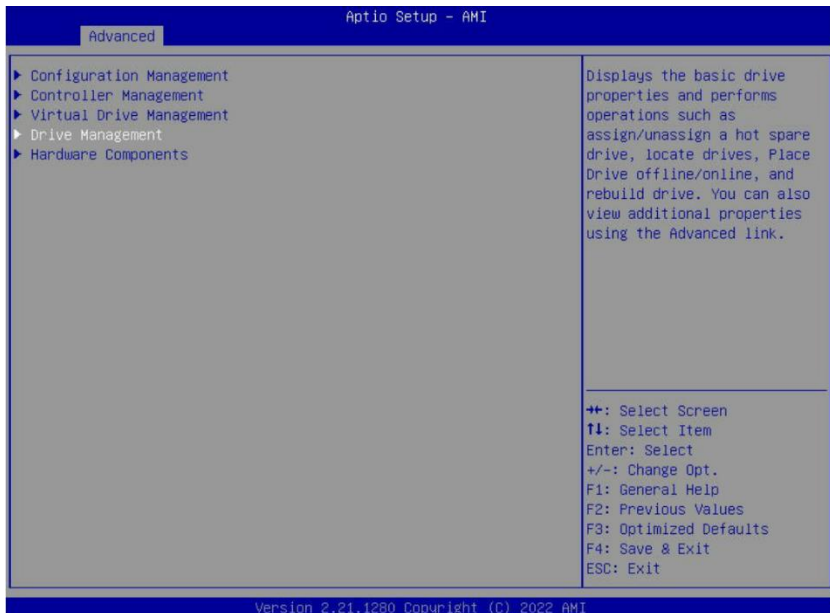
Select **Virtual Drive Management**.



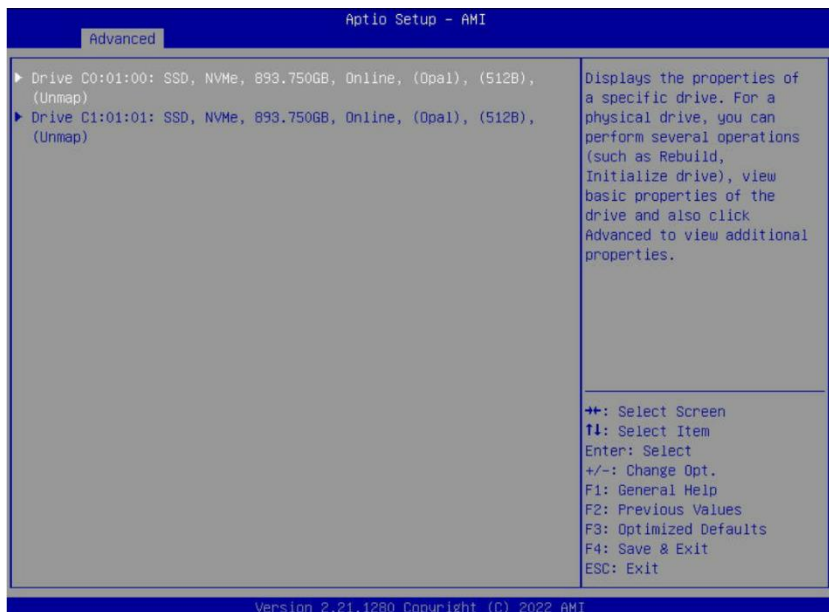
Check the virtual drive status.



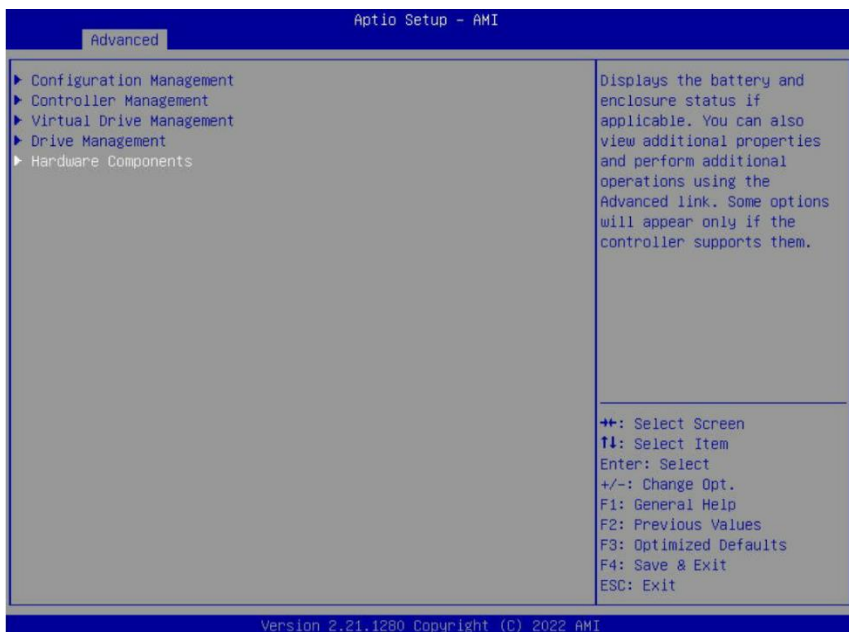
Select Drive Management.



Check physical drive status.



Select Hardware Components.



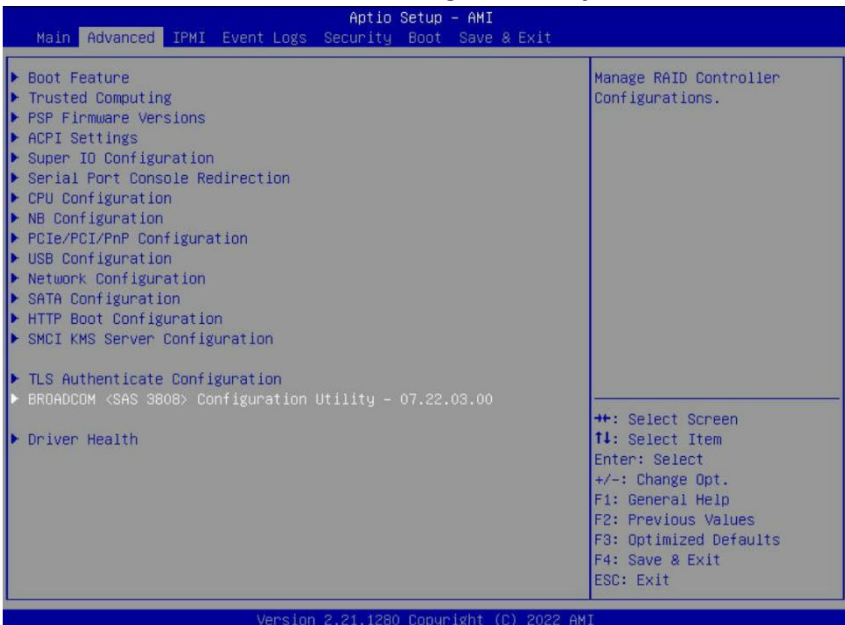
Chapter 5

Hybrid Drive Type Change

This chapter provides instructions on how to change the Profile ID. Please remove all the installed devices before changing the Profile ID.

5-1 Changing Drive Type under UEFI

1. Select **BROADCOM <SAS 3808> Configuration Utility** and enter the **Main Menu**.



Aptio Setup - AMI

Advanced

<pre> ▶ Main Menu ▶ Help PROPERTIES: Status [Optimal] Backplane 1 CacheVault [No] Enclosure 0 Drives 2 Drive Groups 1 Virtual Drives 1 ▶ View Server Profile ACTIONS: ▶ Configure ▶ Set Factory Defaults ▶ Update Firmware BACKGROUND OPERATIONS: Virtual Drive Operations in Progress None Drive Operations in Progress None MegaRAID ADVANCED SOFTWARE OPTIONS: MegaRAID SafeStore [Enabled] MegaRAID FastPath [Enabled] </pre>	<p>Shows menu options such as Configuration Management, Controller Management, Virtual Drive Management, Drive Management and Hardware Components.</p> <hr/> <pre> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit </pre>
--	--

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2. On the Main Menu, select **Controller Management**.

Aptio Setup - AMI

Advanced

<pre> ▶ Configuration Management ▶ Controller Management ▶ Virtual Drive Management ▶ Drive Management ▶ Hardware Components </pre>	<p>Displays the controller status and basic properties of the controller such as product name, serial number, PCI ID, firmware version and NVDATA Version. You can also use the Advanced link to view additional properties and perform additional tasks such as changing the security key, saving the TTY log.</p> <hr/> <pre> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit </pre>
---	---

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3. On the Controller Management menu, select **Advanced Controller Management**.

The screenshot shows the 'Advanced' menu in the Aptio Setup - AMI. The 'Advanced Controller Management' option is selected, displaying a list of system properties and their values. A legend on the right side of the screen explains the navigation keys: F2 for Select Screen, F4 for Select Item, Enter for Select, +/- for Change Opt., F1 for General Help, F2 for Previous Values, F3 for Optimized Defaults, F4 for Save & Exit, and ESC for Exit. The bottom of the screen displays the version 'Version 2.22.1282 Copyright (C) 2022 AMI'.

Aptio Setup - AMI	
Advanced	
BASIC PROPERTIES:	
Product Name	SAS 3808
Controller Status	[Optimal]
Personality Mode	[RAID]
Select Boot Device	[None]
PCI ID	0x1000 0x10E6 0x15D9 0x1C6E
PCI Segment:Bus:Device:Function	0x0000 0x051 0x00 0x0
PCI Slot Number	1
Package Version	52.22.0-4571
PSOC Firmware Version	0x0000
Firmware Version	5.220.01-3691
NVDATA Version	5.2200.21-0585
Supported Device Interfaces	[SAS,SATA,NVMe]
Drive Count	2
Virtual Drive Count	1
▶ Advanced Controller Management	
▶ Advanced Controller Properties	

Provides a link to various controller management activities such as, clear and save controller events, schedule a consistency check, set factory defaults, and so on.

++: Select Screen
F4: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

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4. Enter **Manage Controller Profiles**.

The screenshot shows the 'Advanced' menu in the Aptio Setup - AMI. The 'Manage Controller Profiles' option is selected, displaying a list of management tasks. A legend on the right side of the screen explains the navigation keys: F2 for Select Screen, F4 for Select Item, Enter for Select, +/- for Change Opt., F1 for General Help, F2 for Previous Values, F3 for Optimized Defaults, F4 for Save & Exit, and ESC for Exit. The bottom of the screen displays the version 'Version 2.22.1282 Copyright (C) 2022 AMI'.

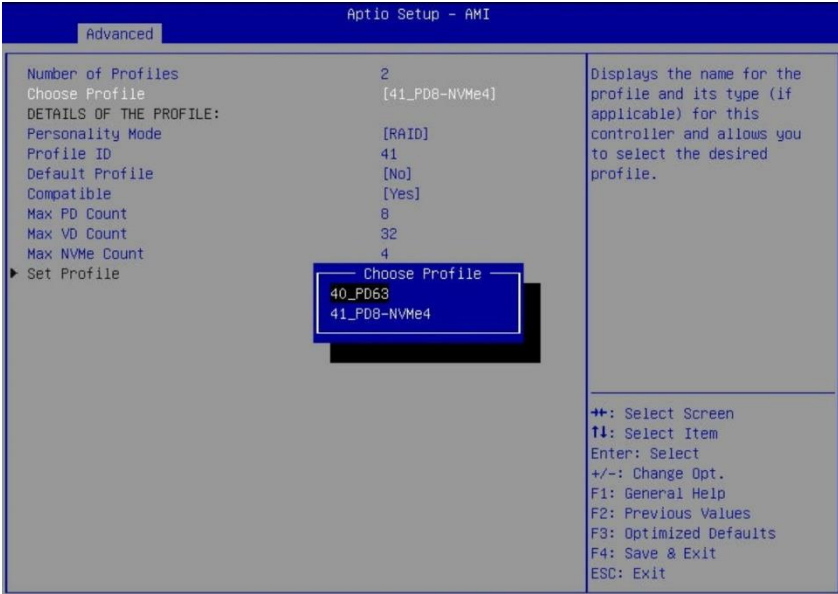
Aptio Setup - AMI	
Advanced	
▶ Clear Controller Events	
▶ Save Controller Events	
▶ Save TTY Log	
▶ Enable Drive Security	
▶ Disable Drive Security	
▶ Change Security Settings	
▶ Manage SAS Storage Link Speed	
▶ Manage PCIe Storage Interface	
▶ Manage MegaRAID Advanced Software Options	
▶ Schedule Consistency Check	
▶ Set Factory Defaults	
▶ Manage Personality Mode	
▶ Manage Controller Profiles	

Allows you to see the details of the profile and choose the desired profile, if supported.

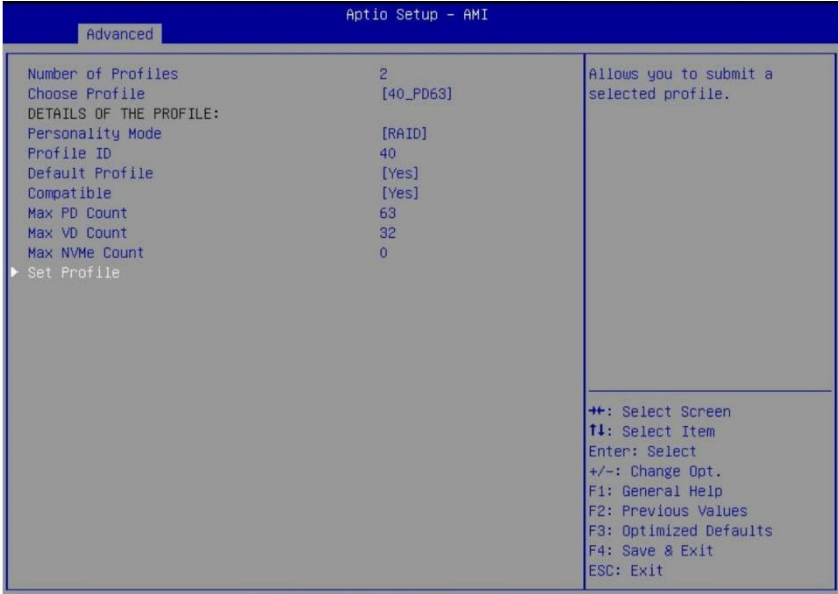
++: Select Screen
F4: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

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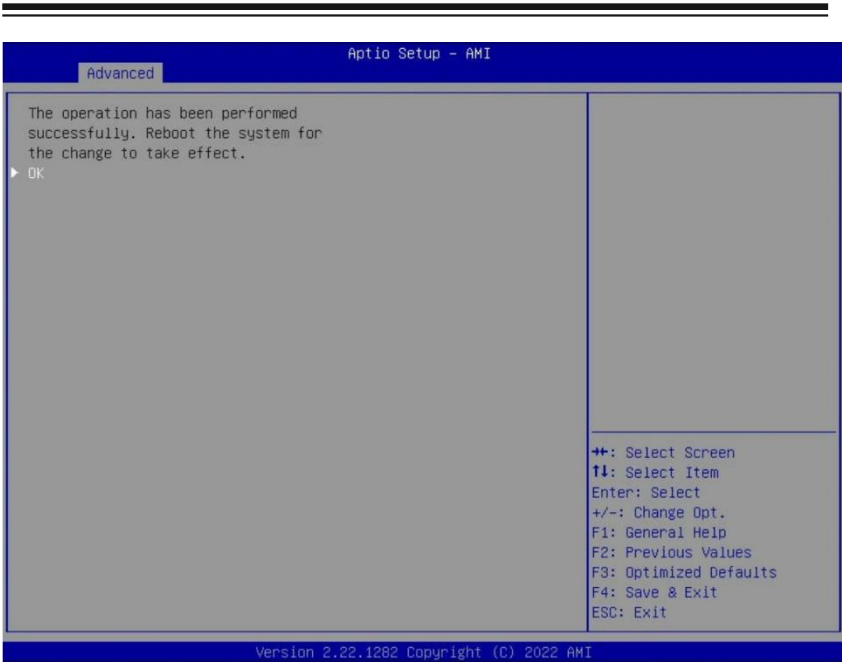
5. Select **Choose Profile** and choose a profile name.



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6. Press <F4> to save and exit.

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