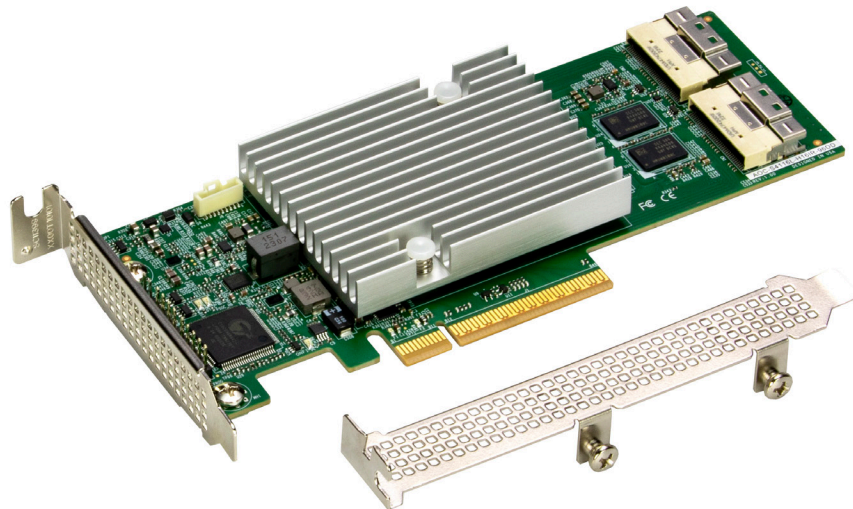




AOC-S4116L-H16iR-16DD
AOC-S4116L-H16iR-96DD



USER'S MANUAL

Revision 1.0

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Manual Revision 1.0

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Preface

About This Manual

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-S4116L-H16iR-16DD and AOC-S4116L-H16iR-96DD.

About This Add-On Card

The Supermicro® AOC-S4116L-H16iR-16DD and AOC-S4116L-H16iR-96DD are the most technologically advanced, cost-effective, and reliable SAS4 MegaRAID® adapters in today's market. With the Broadcom® SAS 4116 controller, up to 16 ports (96 SAS/SATA devices with an expander backplane), and a low-profile PCIe Gen 4.0 x8 slot built in, these add-on cards offer high-performance connectivity with enormous storage capacity to meet the growing needs of enterprise server platforms. If the optional SuperCap/TFM unit is built-in, the add-on cards can support 4 GB DDR4 on-card cache memory at a speed of 2666 MHz (maximum), providing cached data protection during catastrophic system failures.

In addition, the embedded Broadcom SAS 4116 I/O processor offers optimal RAID performance and a PCI-Express host interface for increased I/O bandwidth. The AOC-S4116L-H16iR-16DD and AOC-S4116L-H16iR-96DD adapters deliver an intelligent and robust RAID solution to the market.

An Important Note to the User

All graphic images and layout drawings shown in this user's guide are based upon the latest PCB revision available at the time of publishing this user's guide. The add-on 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 to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton and 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, RMA authorizations may be requested online (<http://www.supermicro.com/support/rma/>).

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

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

Conventions Used in the Manual

Special attention should be given to the following symbols for proper installation and to prevent damage done to the components or injury.



Warning! Indicates important information given to prevent equipment/property damage or personal injury.



Warning! Indicates high voltage may be encountered while performing a procedure.



Important: Important information given to ensure proper system installation or to relay safety precautions.



Note: Additional information given to differentiate various models or to provide information for proper system setup.

Important Links

For your system to work properly, follow the links below to download all necessary drivers/utilities and the user's manual for your server.

- Supermicro product manuals: <http://www.supermicro.com/support/manuals/>
- Product drivers and utilities: <https://www.supermicro.com/wdl/driver>
- Product safety info: http://www.supermicro.com/about/policies/safety_information.cfm
- A secure data deletion tool designed to fully erase all data from storage devices can be found at our website: https://www.supermicro.com/about/policies/disclaimer.cfm?url=/wdl/utility/Lot9_Secure_Data_Deletion_Utility/
- If you have any questions, contact our support team at: support@supermicro.com
- Frequently Asked Questions: <https://www.supermicro.com/FAQ/index.php>
- If you have any feedback on Supermicro product manuals, contact our writing team at: Techwriterteam@supermicro.com

This manual may be periodically updated without notice. Check the Supermicro website for possible updates to the manual revision level.

Naming Convention for Networking Adapters

AOC- S 3108 L - H 8 iR



| Character (Set) | Representation | Options (SAS AOC) |
|-----------------|------------------|--|
| Prefix | Product Family | <ul style="list-style-type: none"> AOC = Add On Card |
| 1st | Form Factor | <ul style="list-style-type: none"> U = UIO S = Standard PCIe |
| 2nd | Chipset | <ul style="list-style-type: none"> 3808 = Broadcom 3808 chip 3816 = Broadcom 3816 chip 3908 = Broadcom 3908 chip 3916 = Broadcom 3916 chip 3008 = Broadcom 3008 chip 3108 = Broadcom 3108 chip 3216 = Broadcom 3216 chip 3616 = Broadcom 3616 chip 2208 = Broadcom 2208 chip 2308 = Broadcom 2308 chip |
| 3rd | Card Form Factor | <ul style="list-style-type: none"> L = Low-profile R = Full-height Half-length F = Full-height Full-length |
| 4th | Card Usage | <ul style="list-style-type: none"> H = ROC high performance RAID card L = Entry level HBA MV = Marvel |
| 5th | Port Number | <ul style="list-style-type: none"> 8 = 8 ports |
| 6th | Port Type | <ul style="list-style-type: none"> iR = Full RAID support e = HBA only (No RAID support / IT mode) i = SW RAID (Minial RAID support / IR mode) |

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Chapter 1

Introduction

1.1 Overview

Congratulations on purchasing your add-on 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, refer to our website at <https://www.supermicro.com/en/products/networking/adapters>.

1.2 Key Features

The key features for the AOC-S4116-H16iR-16DD add-on card include the following:

- Low profile PCIe 4.0 x8 controller
- 16 internal SAS4 ports with MegaRAID adapter
- Supports up to 16 SAS/SATA devices maximum
- Supports up to four NVMe devices with direct attach backplane
- Supports 22.5 Gb/s SAS, 6 Gb/s SATA data transfer rates per lane, or up to 16.0 GT/s PCIe data transfer rate
- Broadcom SAS4116: 4 GB on-board cache memory with support for RAID 0, 1, 5, 6, 10, 50, and 60
- Two internal SlimSAS x8 SFF-8654 connectors
- Supports the following management utilities:
 - LSI Storage AuthorityLSA
 - StorCLI (command-line interface)
 - UEFI HII Configuration Utility

- BMC-enabled management
- CacheVault flash cache protection, including the following features:
 - TFM – include on-board
 - Supercap – BTR-CVPM05 (Optional)
- MegaRAID SafeStore Software
- Hardware Secure Boot and SPDM Attestation support
- OS support: Microsoft Windows, VMware, Linux
- Dimensions: 68.83 mm x 167.64 mm x 22 mm (H x W x D)

The key features for the AOC-S4116-H16iR-96DD add-on card include the following:

- Low profile PCIe 4.0 x8 controller
- Supports maximum of up to 96 SAS/SATA devices expander
- Up to 16 SAS/SATA devices with direct attach backplane
- Supports up to four NVMe devices
- Supports 22.5 Gb/s SAS, 6 Gb/s SATA data transfer rates per lane, or up to 16.0 GT/s PCIe data transfer rate
- Broadcom SAS4116: 4 GB on-board cache memory with support for RAID 0, 1, 5, 6, 10, 50, and 60
- Two internal SlimSAS x8 SFF-8654 connectors
- Supports MCTP over PCIe or I2C (MCTP over PCIe by default)
- Supports the following management utilities:
 - LSI Storage Authority (LSA)
 - StorCLI (Command-line Interface)

- UEFI HII Configuration Utility
- BMC-enabled management
- CacheVault flash cache protection, including the following features:
 - TFM – include on-board
 - Supercap – BTR-CVPM05 (Optional)
- MegaRAID SafeStore Software
- Hardware Secure Boot and Attestation (requires BMC development)
- OS support: Microsoft Windows, VMware, Linux
- Dimensions: 68.83 mm x 167.64 mm x 22 mm (H x W x D)



Note 1: No mode change is allowed without going through the proper procedure. This means no switching on NVMe and SAS/SATA connection cables without first power cycling the card.

Note 2: No mixed mode is allowed. All the cable connections have to be either all NVMe cables or all SAS/SATA cables.

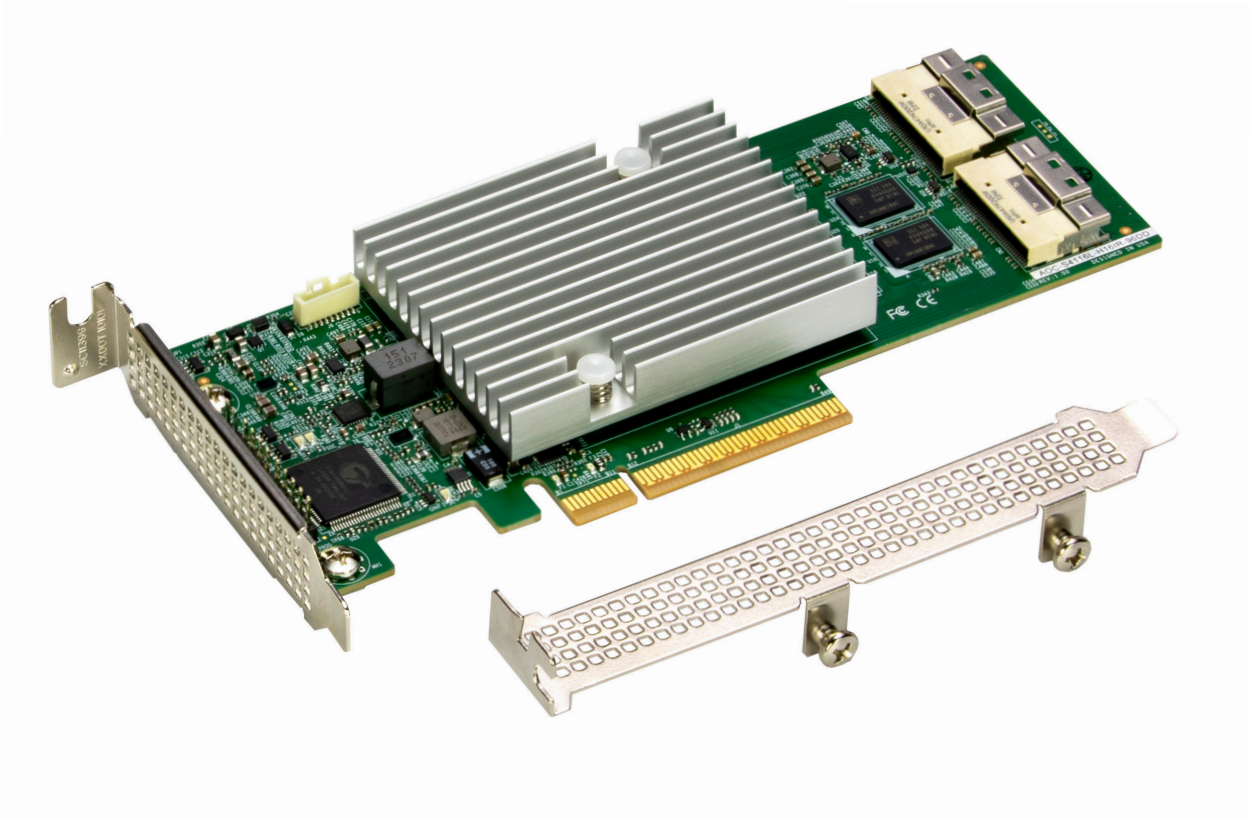
Note 3: For NVMe application, the NVMe BPN I2C Slave Address for the BMC sideband protocol must be set to “0x66h” while the backplane CPLD registers must comply with Gen 2 definitions.

Note 4: When using the AOC for NVMe device storage, avoid connecting NVMe cables from the motherboard or multiple NVMe cards to the same backplane unless the backplane supports multiple and separate BMC channel sideband connections.

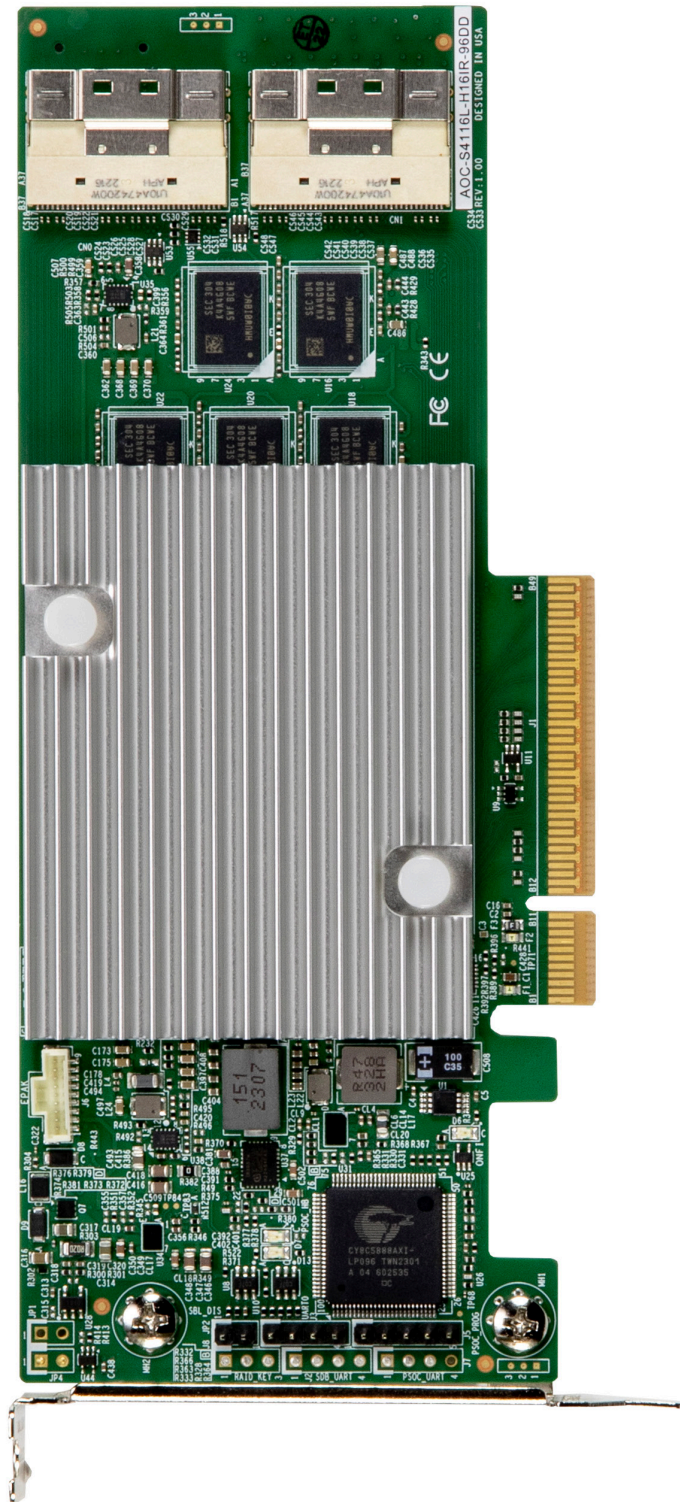
Chapter 2

Hardware Components

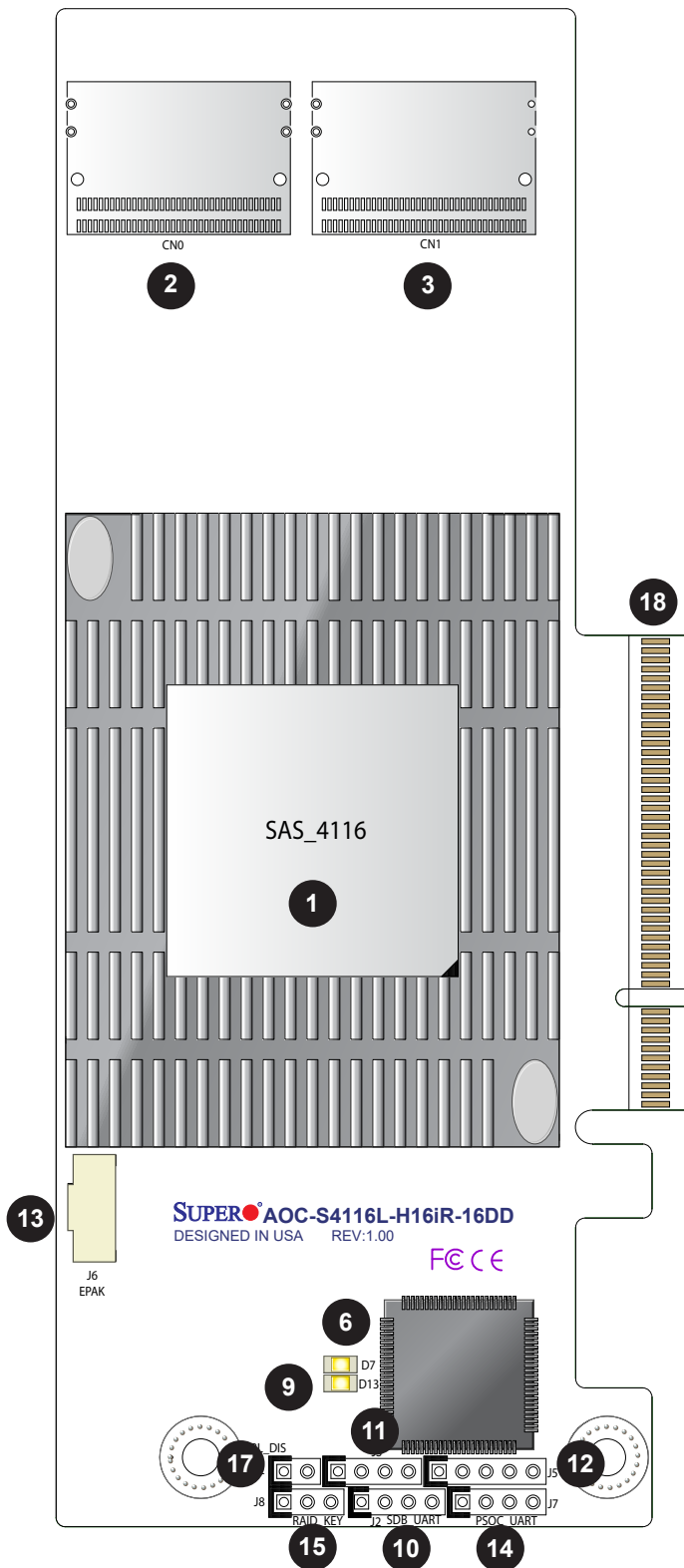
2.1 Add-On Card Image and Layout



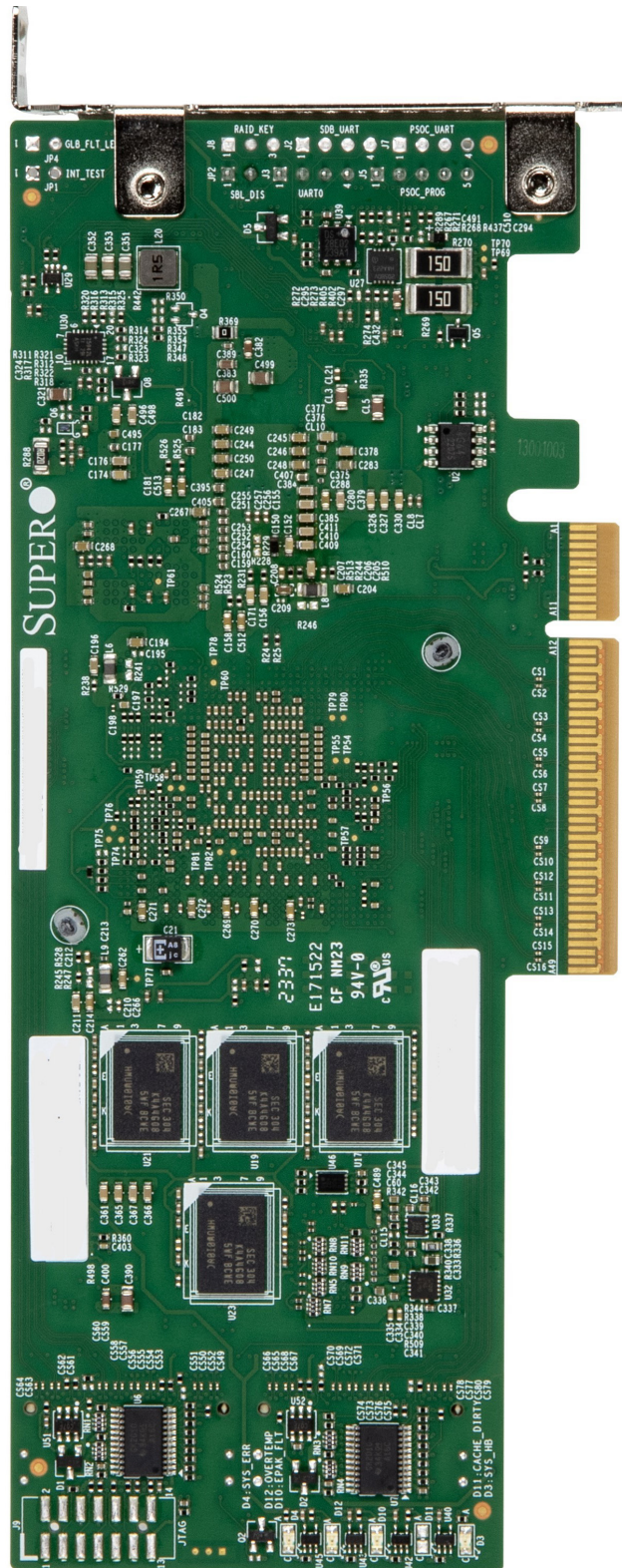
AOC-S4116L-H16iR-96DD Image



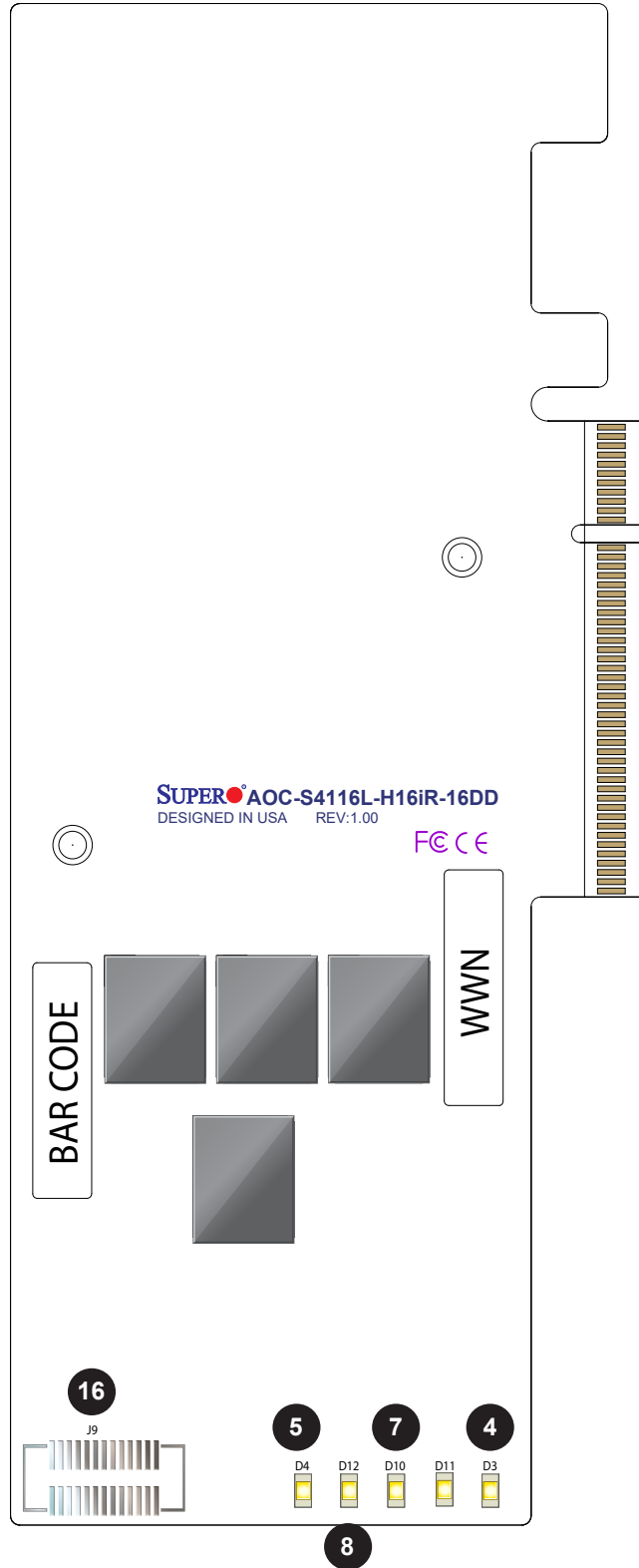
AOC-S4116L-H16iR-16DD Top (PCB Assembly)



AOC-S4116L-H16iR-16DD Top Layout



AOC-S4116L-H16iR-96DD Bottom (PCB Assembly)



AOC-S4116L-H16iR-16DD Bottom Layout

2.2 Major Components

The following major components are installed on the AOC-S4116L-H16iR-16DD and AOC-S4116L-H16iR-96DD:

| AOC-S4116L-H16iR-16DD and AOC-S4116L-H16iR-96DD Major Components | | |
|---|-----------------------|--------------------------|
| No | Component Name | Definition |
| 1 | SAS_4116 | SAS controller |
| 2 | CN0 | SAS ports 0 – 7 |
| 3 | CN1 | SAS ports 8 – 15 |
| 4 | D3 | System Heartbeat LED |
| 5 | D4 | System Error LED |
| 6 | D7 | PSoC Heartbeat LED |
| 7 | D10 | EPAK FLT LED |
| 8 | D12 | Overtemp LED |
| 9 | D13 | ONFI LED |
| 10 | J2 | SDB UART Header |
| 11 | J3 | UART0 Header |
| 12 | J5 | PSoC Program Header |
| 13 | J6 (EPAK) | SuperCap 9-pin Connector |
| 14 | J7 (PSOC_UART) | PSoC UART Header |
| 15 | J8 (RAID_KEY) | RAID Key |
| 16 | J9 | JTag |
| 17 | JP2 (SBL_DIS) | SBL Disable Jumper |
| 18 | PCIe 4.0 x8 | PCIe slot |

2.3 SAS4.0 Ports and Headers

SAS Ports

This card has 16 SAS/SATA ports on the Broadcom 4116 SAS controller). The two internal SlimSAS x8 SFF-8654 connectors (CN0 and CN1) respectively support SAS links 0-7 and 8-15.

| CN0 Pin Definitions | | | | CN1 Pin Definitions | | | |
|------------------------|-----------|------|--------------|------------------------|-----------|------|--------------|
| Pin# | Signal | Pin# | Signal | Pin# | Signal | Pin# | Signal |
| A1 | GND | B1 | GND | A1 | GND | B1 | GND |
| A2 | RX0+ | B2 | TX0+ | A2 | RX8+ | B2 | TX8+ |
| A3 | RX0- | B3 | TX0- | A3 | RX8- | B3 | TX8- |
| A4 | GND | B4 | GND | A4 | GND | B4 | GND |
| A5 | RX1+ | B5 | TX1+ | A5 | RX9+ | B5 | TX9+ |
| A6 | RX1- | B6 | TX1- | A6 | RX9- | B6 | TX9- |
| A7 | GND | B7 | GND | A7 | GND | B7 | GND |
| A8 | BP_TYPEA | B8 | SClockA | A8 | BP_TYPEC | B8 | SClockC |
| A9 | SDataOutA | B9 | SloadA | A9 | SDataOutC | B9 | SloadC |
| A10 | GND | B10 | GND | A10 | GND | B10 | GND |
| A11 | NC | B11 | SDataInA | A11 | NC | B11 | SDataInC |
| A12 | NC | B12 | CNTRLR_TYPEA | A12 | NC | B12 | CNTRLR_TYPEC |
| A13 | GND | B13 | GND | A13 | GND | B13 | GND |
| A14 | RX2+ | B14 | TX2+ | A14 | RX10+ | B14 | TX10+ |
| A15 | RX2- | B15 | TX2- | A15 | RX10- | B15 | TX10- |
| A16 | GND | B16 | GND | A16 | GND | B16 | GND |
| A17 | RX3+ | B17 | TX3+ | A17 | RX11+ | B17 | TX11+ |
| A18 | RX3- | B18 | TX3- | A18 | RX11- | B18 | TX11- |
| A19 | GND | B19 | GND | A19 | GND | B19 | GND |
| A20 | RX4+ | B20 | TX4+ | A20 | RX12+ | B20 | TX12+ |
| A21 | RX4- | B21 | TX4- | A21 | RX12- | B21 | TX12- |
| A22 | GND | B22 | GND | A22 | GND | B22 | GND |
| A23 | RX5+ | B23 | TX5+ | A23 | RX13+ | B23 | TX13+ |
| A24 | RX5- | B24 | TX5- | A24 | RX13- | B24 | TX13- |
| A25 | GND | B25 | GND | A25 | GND | B25 | GND |
| A26 | BP_TYPEB | B26 | SClockB | A26 | BP_TYPED | B26 | SClockD |
| A27 | SDataOutB | B27 | SLoadB | A27 | SDataOutD | B27 | SLoadD |
| A28 | GND | B28 | GND | A28 | GND | B28 | GND |
| A29 | NC | B29 | SDataInB | A29 | NC | B29 | SDataInD |
| A30 | NC | B30 | CNTRLR_TYPEB | A30 | NC | B30 | CNTRLR_TYPED |
| A31 | GND | B31 | GND | A31 | GND | B31 | GND |
| A32 | RX6+ | B32 | TX6+ | A32 | RX14+ | B32 | TX14+ |
| A33 | RX6- | B33 | TX6- | A33 | RX14- | B33 | TX14- |
| A34 | GND | B34 | GND | A34 | GND | B34 | GND |
| A35 | RX7+ | B35 | TX7+ | A35 | RX15+ | B35 | TX15+ |
| A36 | RX7- | B36 | TX7- | A36 | RX15- | B36 | TX15- |
| A37 | GND | B37 | GND | A37 | GND | B37 | GND |

SDB UART Header

A four-pin header, located at J2, is used for engineering diagnostic purposes only. See the layout below for the location.

UART0 Header

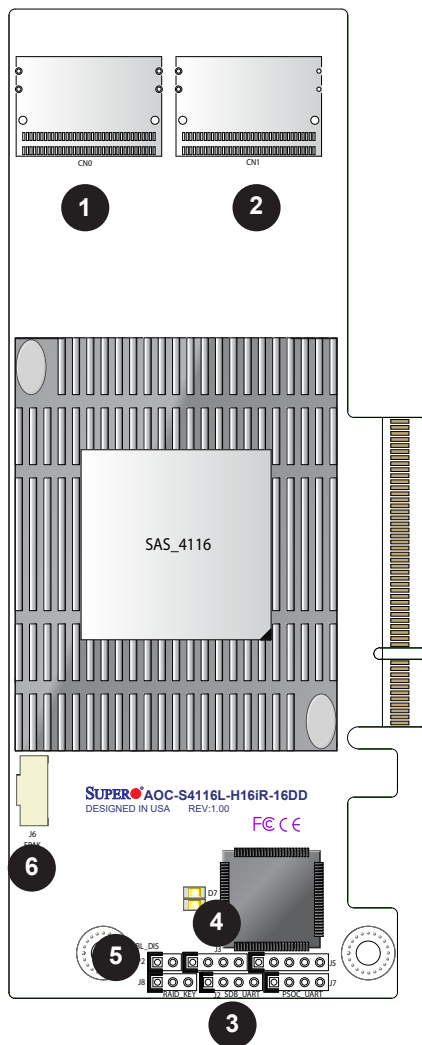
The UART header is located on J3 and is for engineering diagnostic purposes only.

SBL_Disable Jumper

The jumper is located on JP2 and is for the manufacturer's programming purposes only.

SuperCap 9-Pin Connector

The SuperCap connector, designated J6, is used for a cable connection to a SuperCap.



1. CN0 SFF-8654 Internal Connector for Ports 0-7
2. CN1 SFF-8654 Internal Connector for Ports 8-15
3. SDB UART Header
4. UART0 Header
5. SBL_Disable Jumper
6. SuperCap 9-pin Connector

2.4 Front LED Indicators

PSoC Heartbeat LED

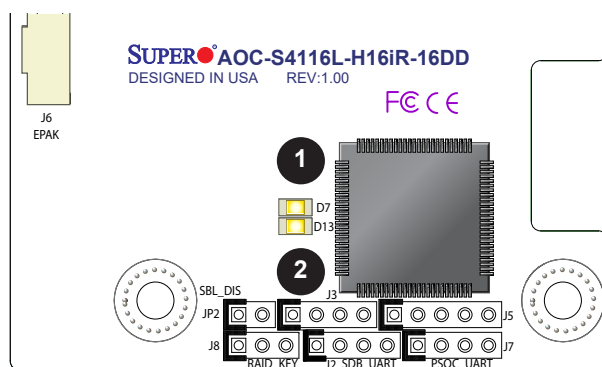
The PSoC Heartbeat LED is located at D7 on the add-on card. When D7 is blinking, it means that the controller card power is functioning normally.

| System Heartbeat LED Status | |
|-----------------------------|------------------------|
| Color/State | Definition |
| Green: Blinking | System: Normal |
| Off | Power failure on board |

ONFI Activity LED

The ONFI Activity LED is located at D6 on the add-on card. When D6 is on, the Cache Offload from DDR4 memory to NAND Flash or Restore Operation from NAND Flash to DDR4 memory is active.

| ONFI Activity LED Status | |
|--------------------------|--|
| Color/State | Definition |
| Green: Solid | ONFI: Cache Offload/Restore Operation is in progress |



1. PSoC
2. ONFI

2.5 Rear LED Indicators

System Error LED

The System Error LED is located at D4 on the add-on card. When D4 is illuminated, a fault has occurred with the controller chip. Refer to page 16 for the location on the bottom of the card.

| System Error LED Status | |
|-------------------------|-----------------------|
| Color/State | Definition |
| Red: Solid | Controller: Fault |
| Off | Controller: Normal |

Overtemp LED

The Overtemp LED is located at D12 on the add-on card. When D12 is on, the controller chip temperature exceeds the threshold for the operating temperature. Refer to page 16 for the location on the bottom of the card.

| Overtemp LED Status | |
|---------------------|-------------------------|
| Color/State | Definition |
| Yellow: Solid | Controller: Overheat |

EPAK_FLT LED

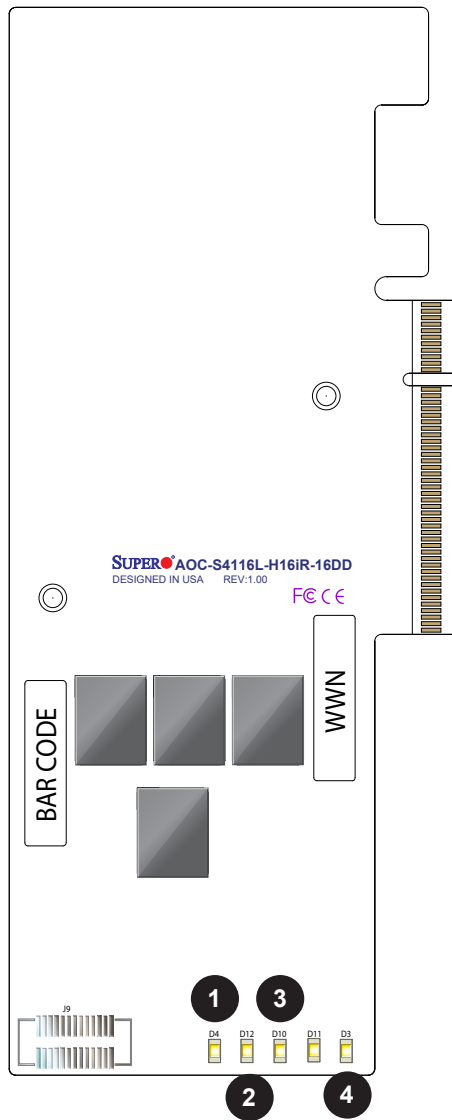
The EPAK_FLT LED is located at D10 on the add-on card. When D10 is illuminated, a fault or overheated temperature has occurred with the SuperCap power module. Refer to page 16 for the location on the bottom of the card.

| EPAK_FLT LED Status | |
|---------------------|--------------------------------|
| Color/State | Definition |
| Yellow: Solid | SuperCap: Overheat or Fault |
| Off | SuperCap: Normal |

System Heartbeat LED

The System Heartbeat LED is located at D3 on the add-on card. When D3 is blinking at 1Hz, the controller is functioning normally.

| System Heartbeat LED Status | |
|-----------------------------|-----------------------------|
| Color/State | Definition |
| Green: Blinking | Controller: Normal |
| Off | Power failure on controller |



1. System Error
2. Overtemp LED
3. EPAK_FLT LED
4. System Heartbeat LED

Chapter 3

Installation

Your system came with the adapter pre-installed as a part of an integrated solution. We do not recommend removing and reinstalling any part of your system components. However, if you do need to remove or re-install a system component, including this add-on card, follow the instructions below to ensure proper system setup. Also, be sure to remove the power cord first before adding, removing, or changing any hardware components to avoid damaging the system or components.

3.1 Static-Sensitive Devices

Electrostatic Discharge (ESD) can damage electronic components. To avoid damaging your add-on 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 add-on card from the antistatic bag.
- Handle the add-on card by its edges only; do not touch its components or peripheral chips.
- Put the add-on 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 add-on card.

Unpacking

The add-on card is shipped in antistatic packaging to avoid static damage. When unpacking your component or system, make sure you are static protected.



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

3.2 Before Installation

To install the add-on card properly, be sure to follow the instructions below.

1. Power down the system.
2. Remove the power cord from the wall socket.
3. Use industry-standard antistatic equipment (such as gloves or wrist strap) and follow the instructions listed on page 23 to avoid damage caused by ESD.
4. Familiarize yourself with the server, motherboard, and/or chassis documentation.
5. Confirm that your operating system includes the latest updates and hot fixes.

3.3 Installing the Add-on Card (with 0.5U bracket)

Follow the steps below to install the add-on card into your system.

1. Remove the server cover and, if necessary, set aside any screws for later use.
2. Remove the add-on card slot cover. If the case requires a screw, place the screw aside for later use.
3. Position the add-on card in the slot directly over the connector.
4. Gently push down on both sides of the card until it slides into the PCI connector.
5. Secure the add-on card to the chassis. If required, use the screw that you previously removed.
6. Attach any necessary external cables to the add-on card.
7. Replace the chassis cover.
8. Plug the power cord into the wall socket, and power up the system.

Chapter 4

Configuring the Broadcom MegaRAID Setting

This chapter provides instructions on how to configure MegaRAID settings for the Broadcom SAS 4116 controllers. If you do not wish to configure MegaRAID settings, skip this section and go directly to OS installation.

4.1 RAID Minimum Drive Requirements

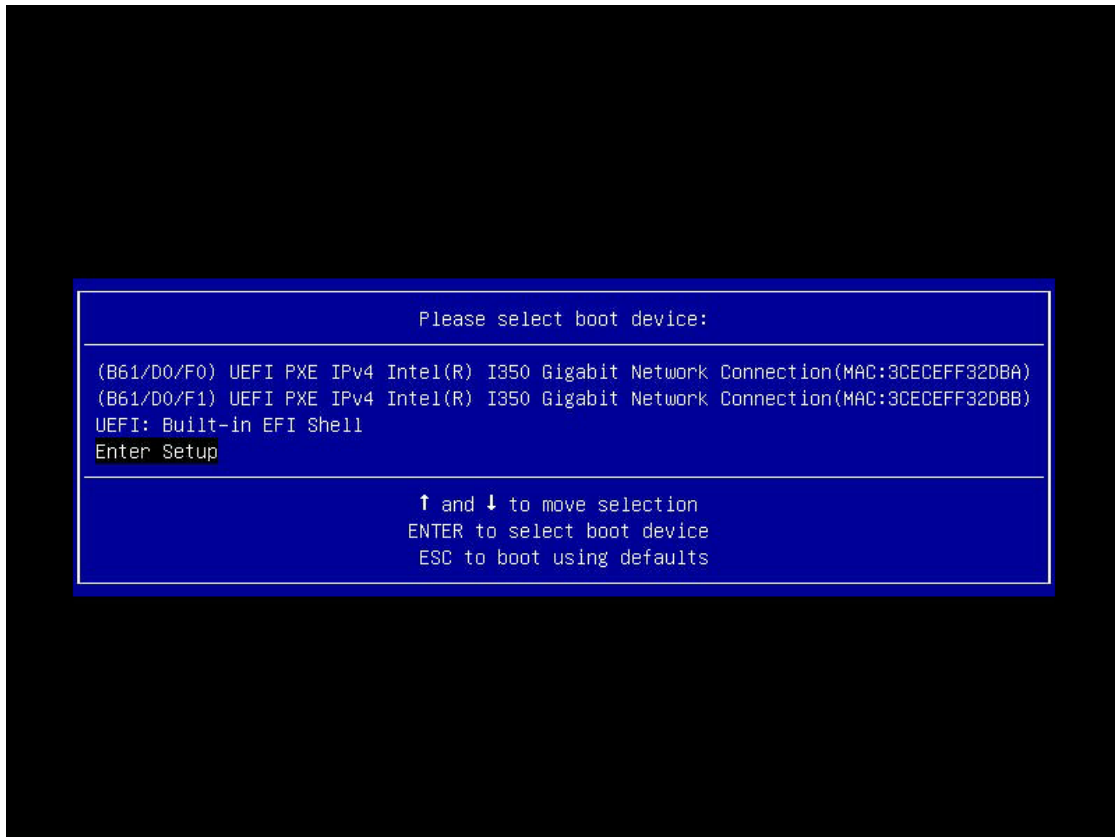
The add-on cards support up to 96 devices with RAID 0, 1, 5, 6, 10, 50, 60, and JBOD. Use the table below to determine the minimum number of hard drives needed to set up a RAID environment.

| RAID | Minimum Hard Drives |
|--------|-----------------------|
| RAID0 | 1 |
| RAID1 | 2 |
| RAID5 | 3 |
| RAID6 | 4 |
| RAID10 | 4 (Two RAID 1 arrays) |
| RAID50 | 6 (Two RAID 5 arrays) |
| RAID60 | 8 (Two RAID 6 arrays) |

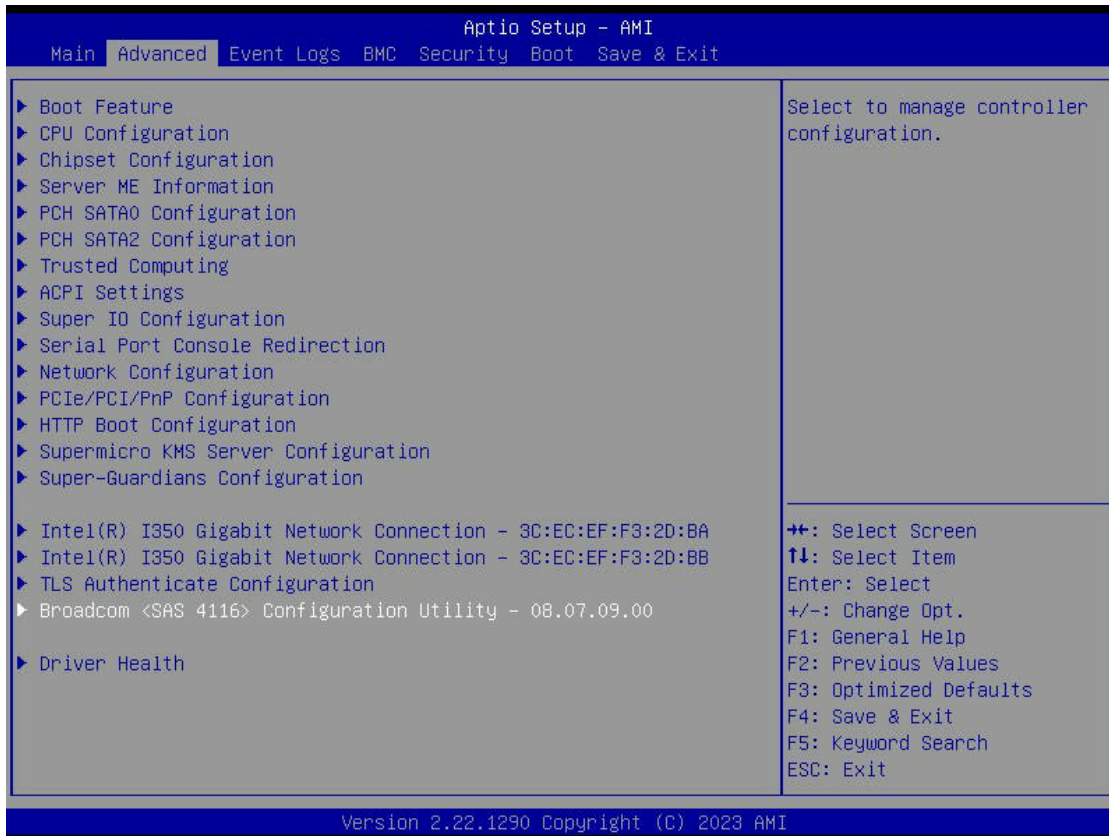
4.2 Using the Broadcom MegaRAID Configuration Utility

Follow the steps below to start the Broadcom MegaRAID Configuration Utility.

1. Power on the system.
2. When the following screen displays, use the up arrow and down arrow keys to move your selection to "Enter Setup," then press **<Enter>**.

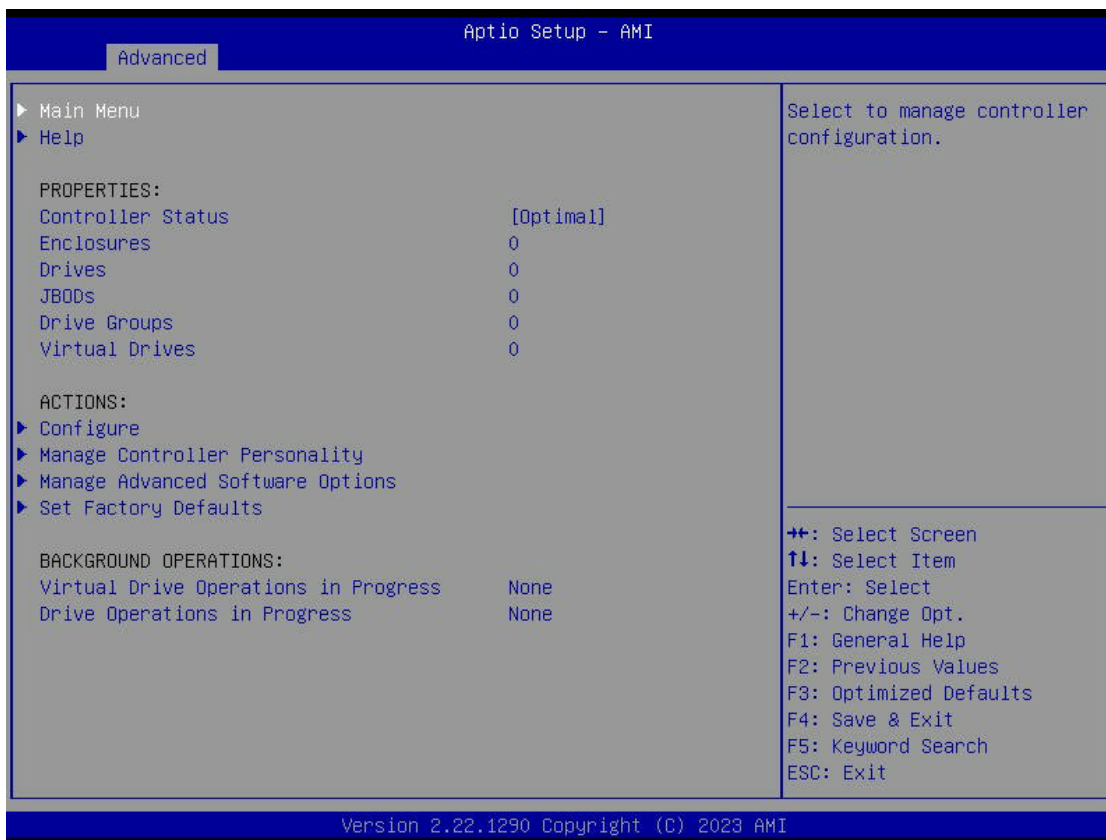


3. In the Advanced tab of the Aptio Setup display, use the up arrow and down arrow keys to move your selection to "Broadcom <SAS 4116> Configuration Utility," then press **<Enter>**.



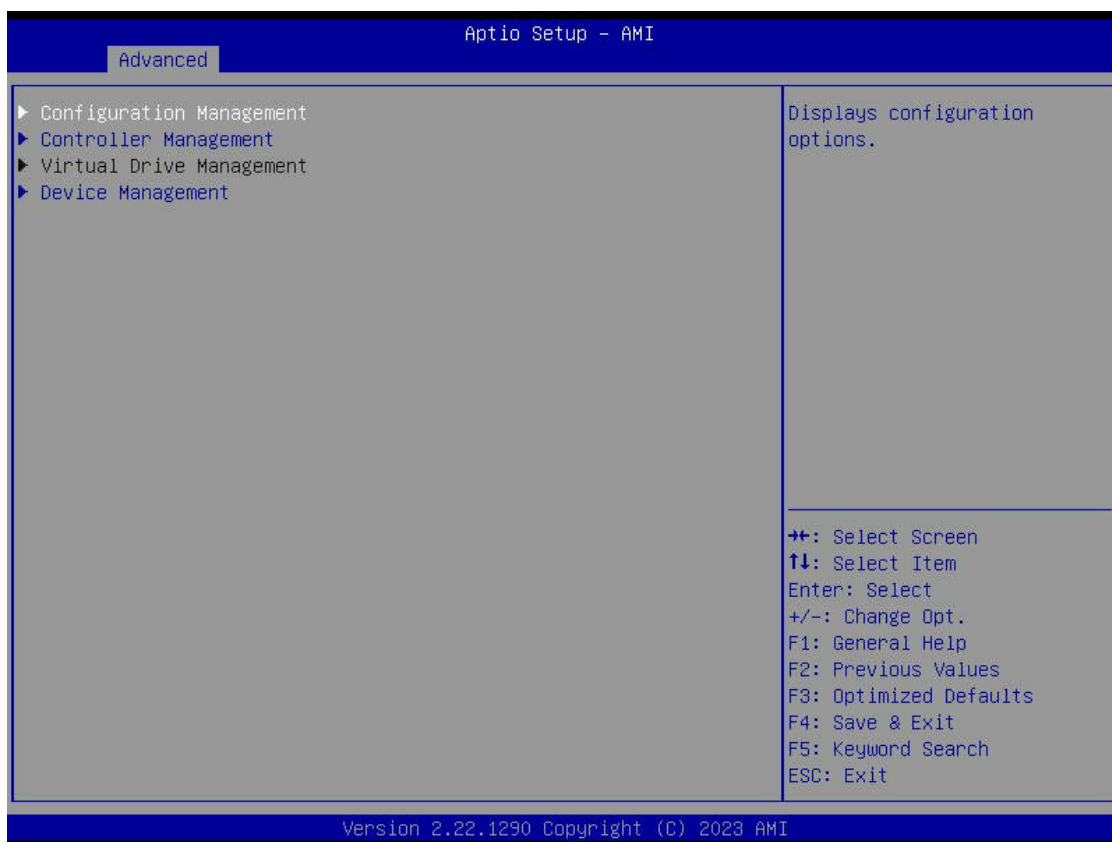
4.3 Broadcom MegaRAID Main Screen

In the Broadcom MegaRAID Configuration Utility, the main menu is the first option displayed. Press **<Enter>** to be taken to a list of configurable menus.



Press the up arrow or down arrow to select a menu. The main screen includes the following menus:

- Configuration Management
- Controller Management
- Virtual Drive Management
- Drive Management



Broadcom MegaRAID Configuration Utility Main Screen

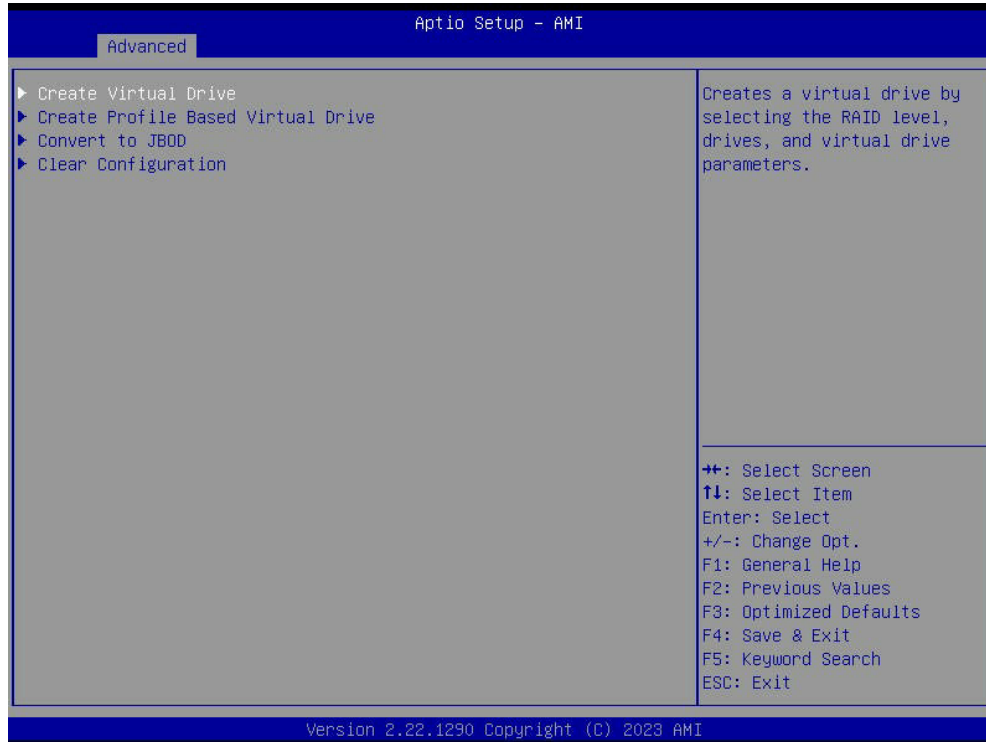
4.4 Creating a Virtual Drive

When you enter the main Advanced menu, Configuration Management is the first menu screen listed. This screen provides information about the configuration of controllers, virtual drives, and devices. To create new virtual drives, perform the following steps. Use the up arrow and down arrow keys to scroll and highlight your chosen option, then press **<Enter>** to select.

1. Select "Configuration Management."



2. Select the "Create Virtual Drive".



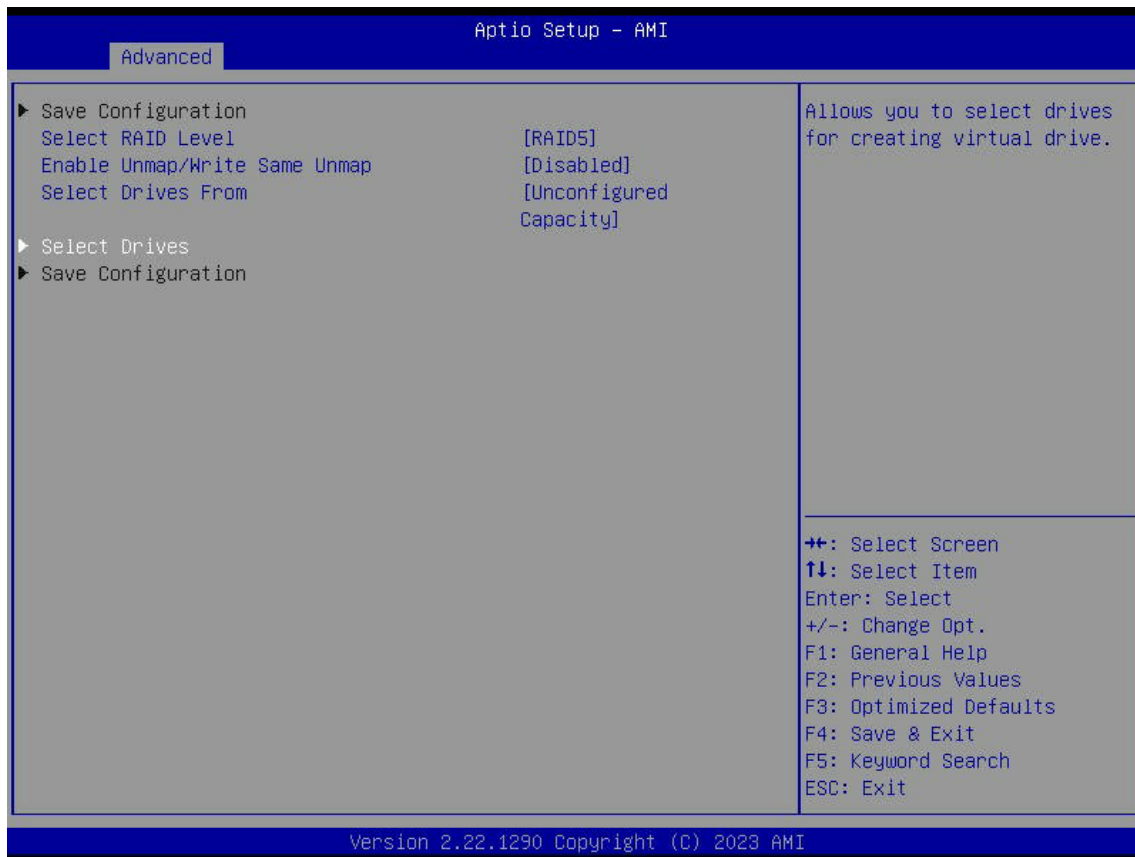
3. Navigate to "Select RAID Level".



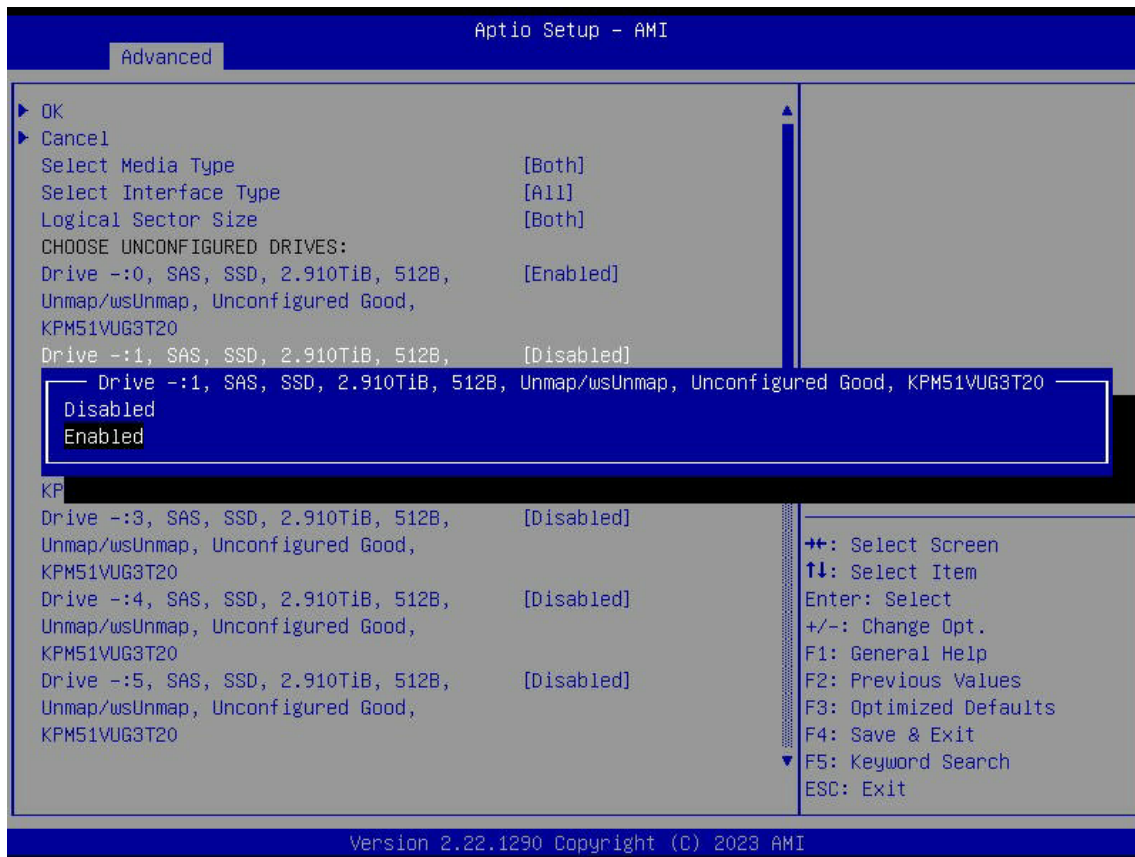
- The displayed RAID level(s) will be based on the number of hard drives connected to the selected controller. Select the desired RAID level.



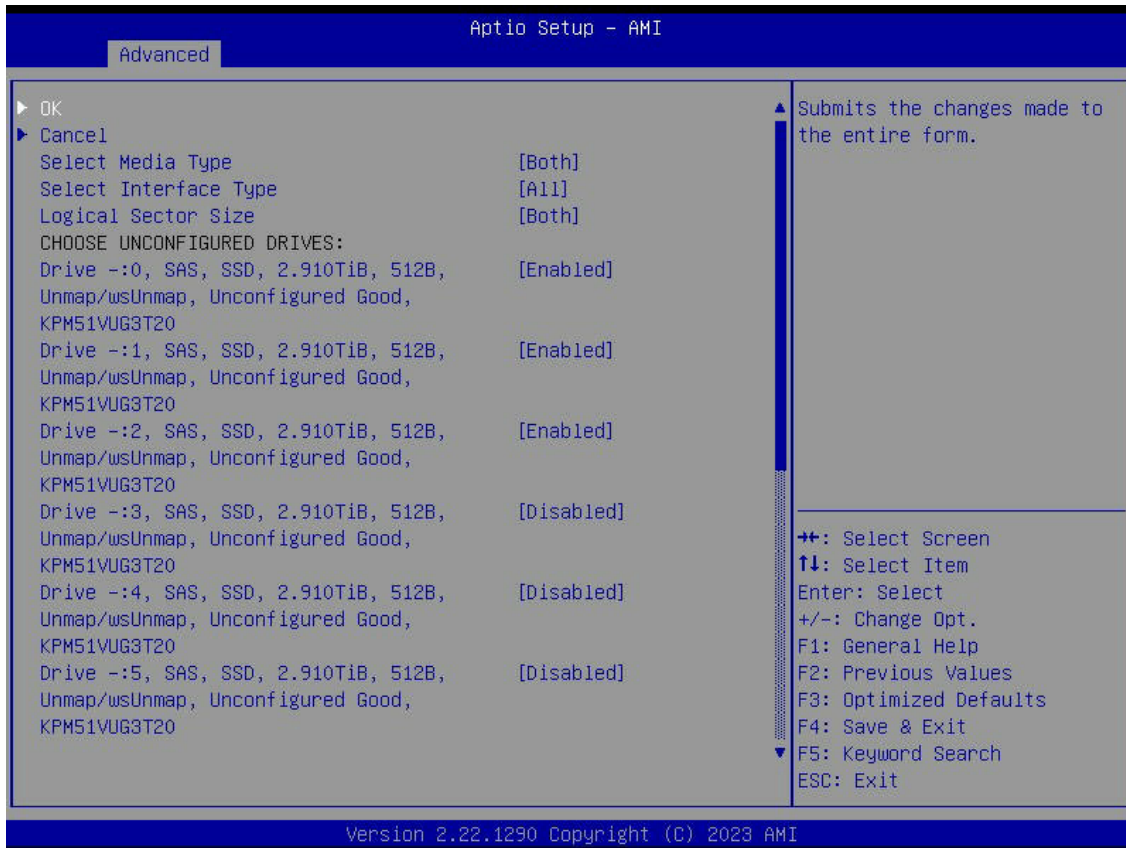
5. Navigate to "Select Drives" and press **<Enter>** to open the screen for selecting drives.



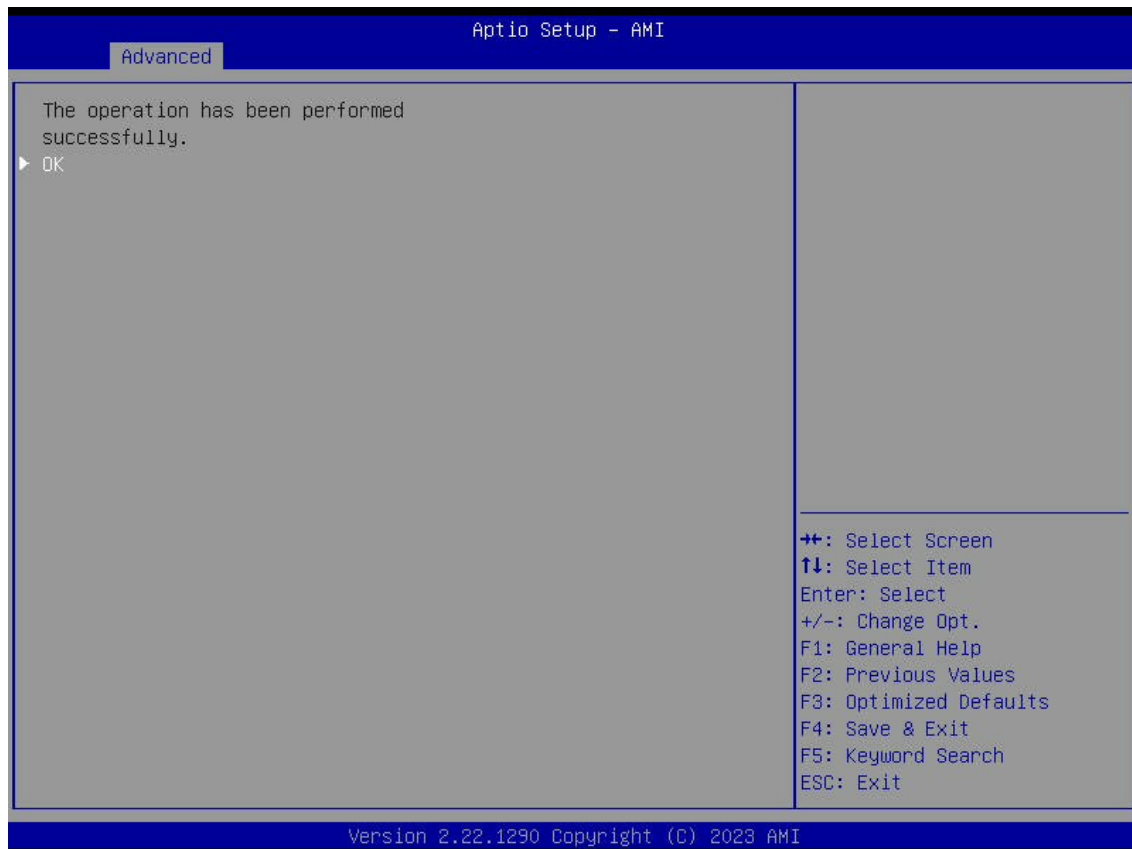
6. When the following display appears, select whether a drive will be enabled or disabled and then press **<Enter>** to confirm change.



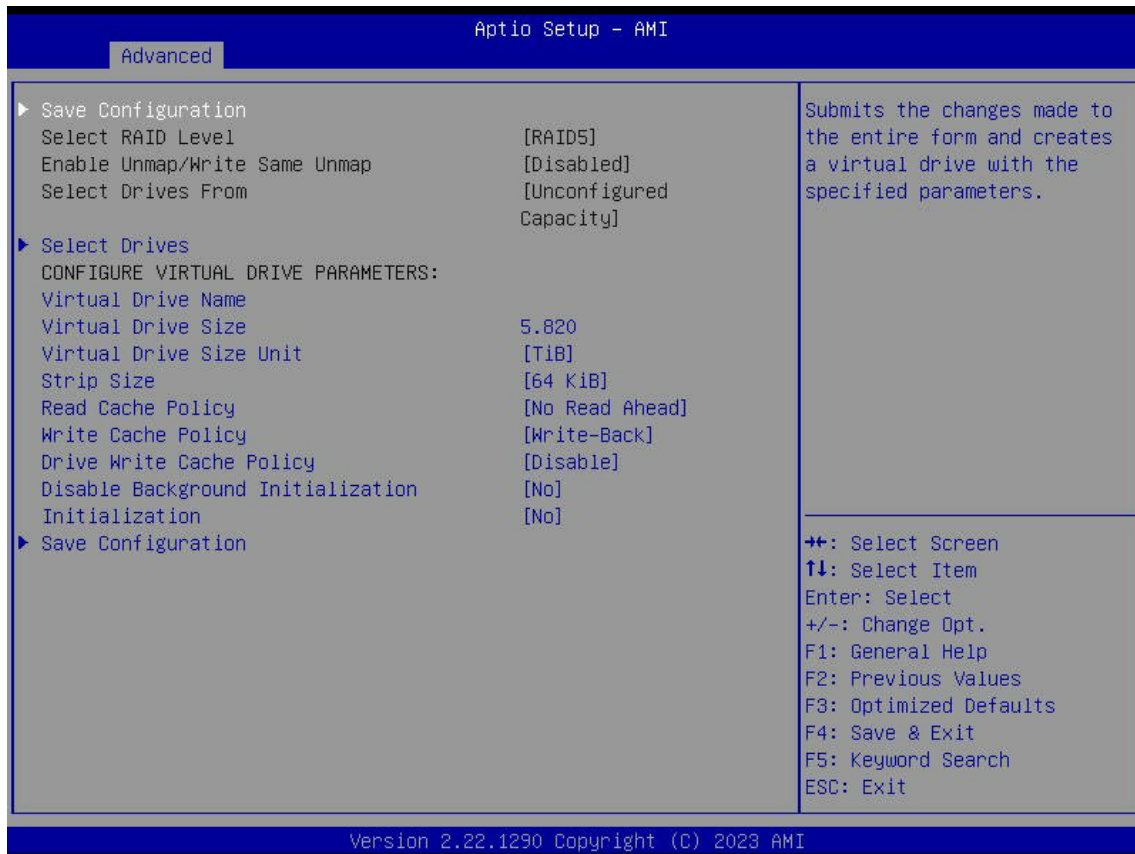
7. When all changes have been made, navigate to "Ok" and press **<Enter>** to submit the changes made to the entire form. If you would like to cancel the changes instead, navigate to Cancel and press **<Enter>**.



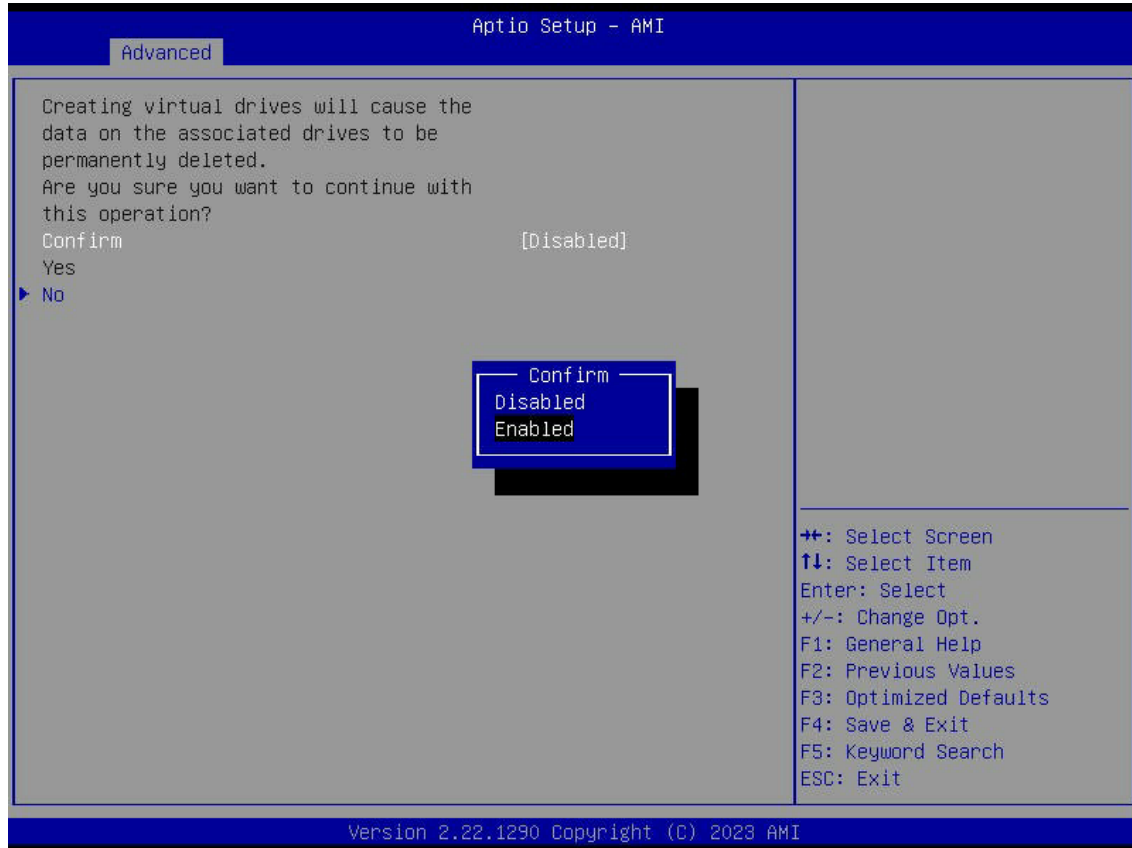
- When the operation has been performed successfully, you will be notified with the following screen. Navigate to "Ok" and press **<Enter>** to return to the menu.



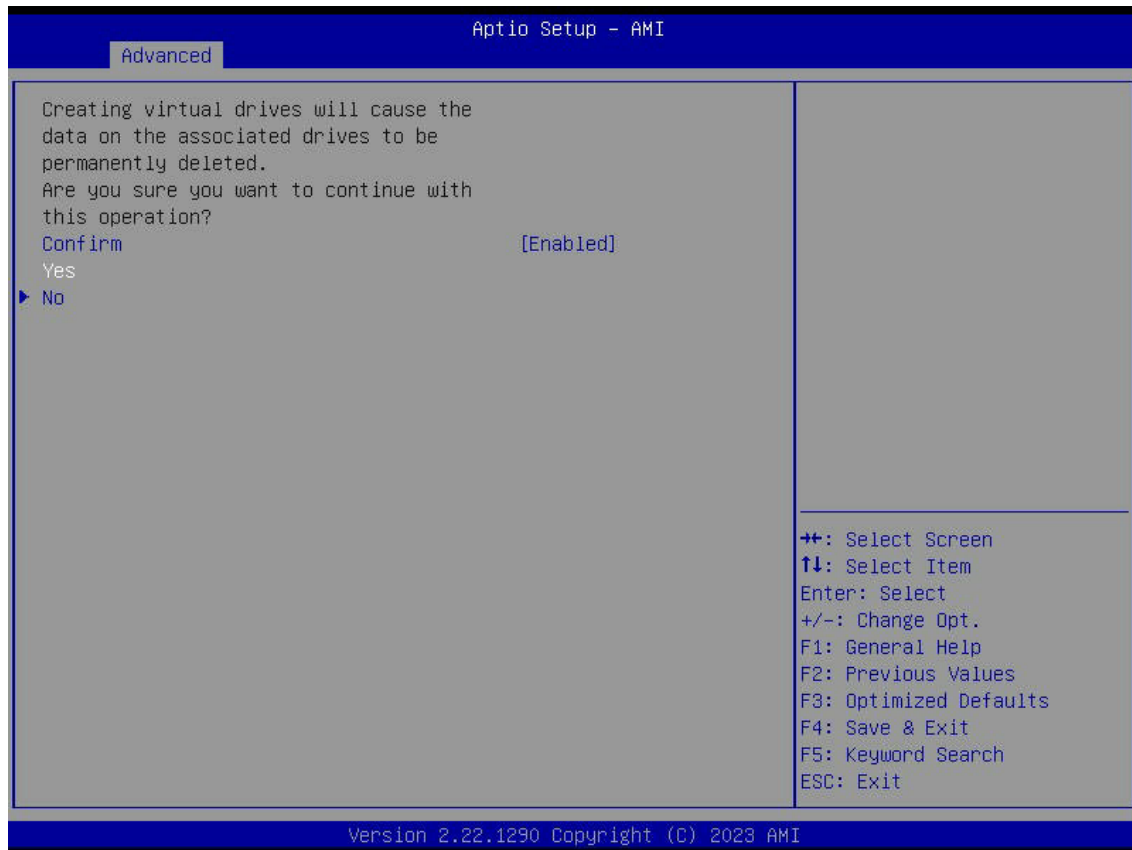
9. Once you are ready to create the new virtual drive, navigate to the Save Configuration option and select it. This will create a virtual drive with the parameters you have chosen.



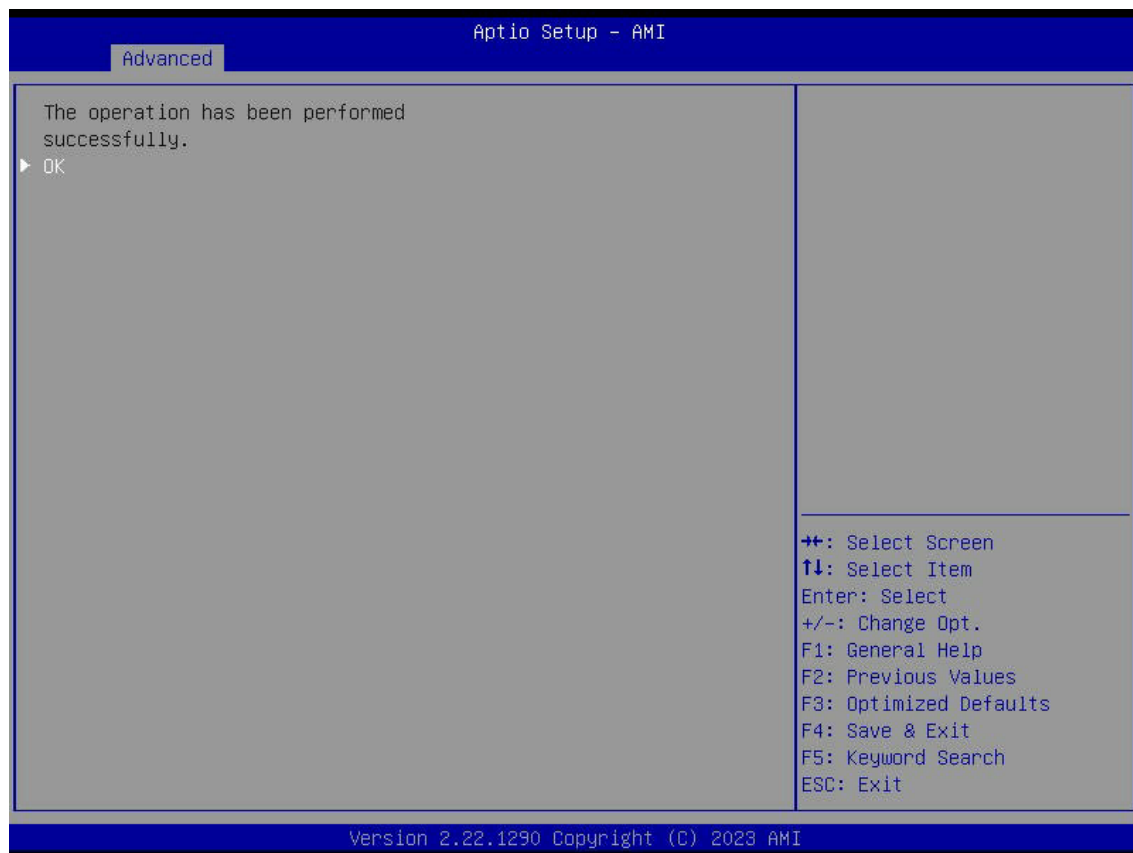
10. A warning will appear stating that creating virtual drives will cause previous data on the associated drives to be permanently deleted. By default, the "Yes" option will be greyed out and the "Confirm" feature will be set to **Disabled**. To confirm you want to continue with this operation, set "Confirm" to **Enabled** and press **<Enter>**.



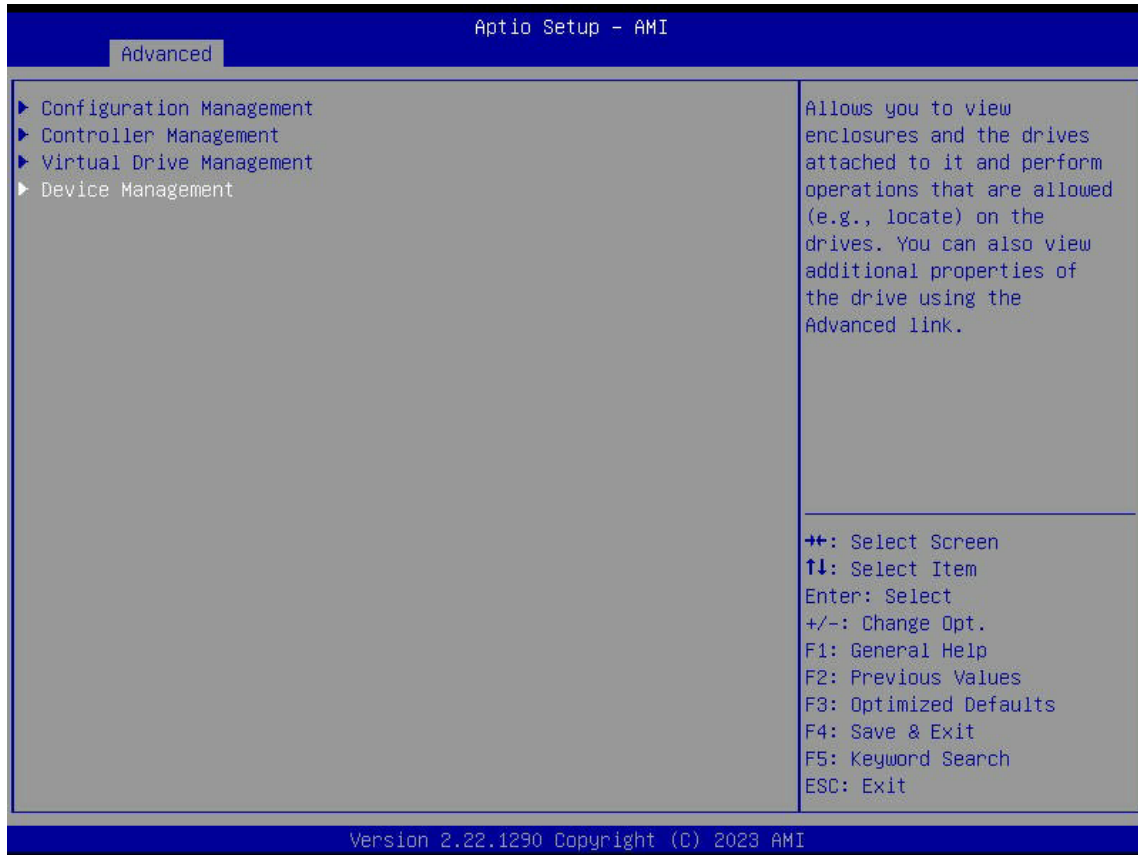
11. Then select **Yes** and press **<Enter>** to confirm this change. If you do not to continue with the operation, simply navigate down to **No** and press **<Enter>**.



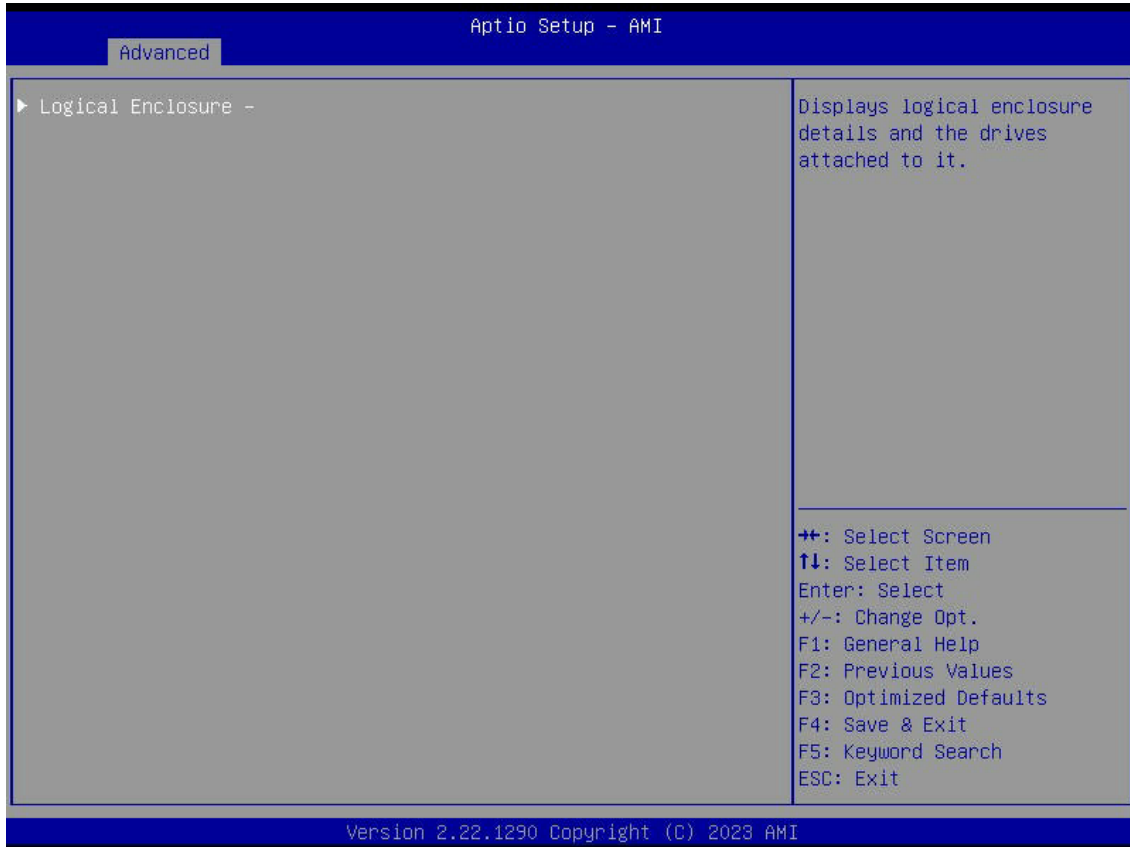
12. When the operation has been performed successfully, you will be notified with the following screen. Navigate to "Ok" and press **<Enter>** to return to the menu.



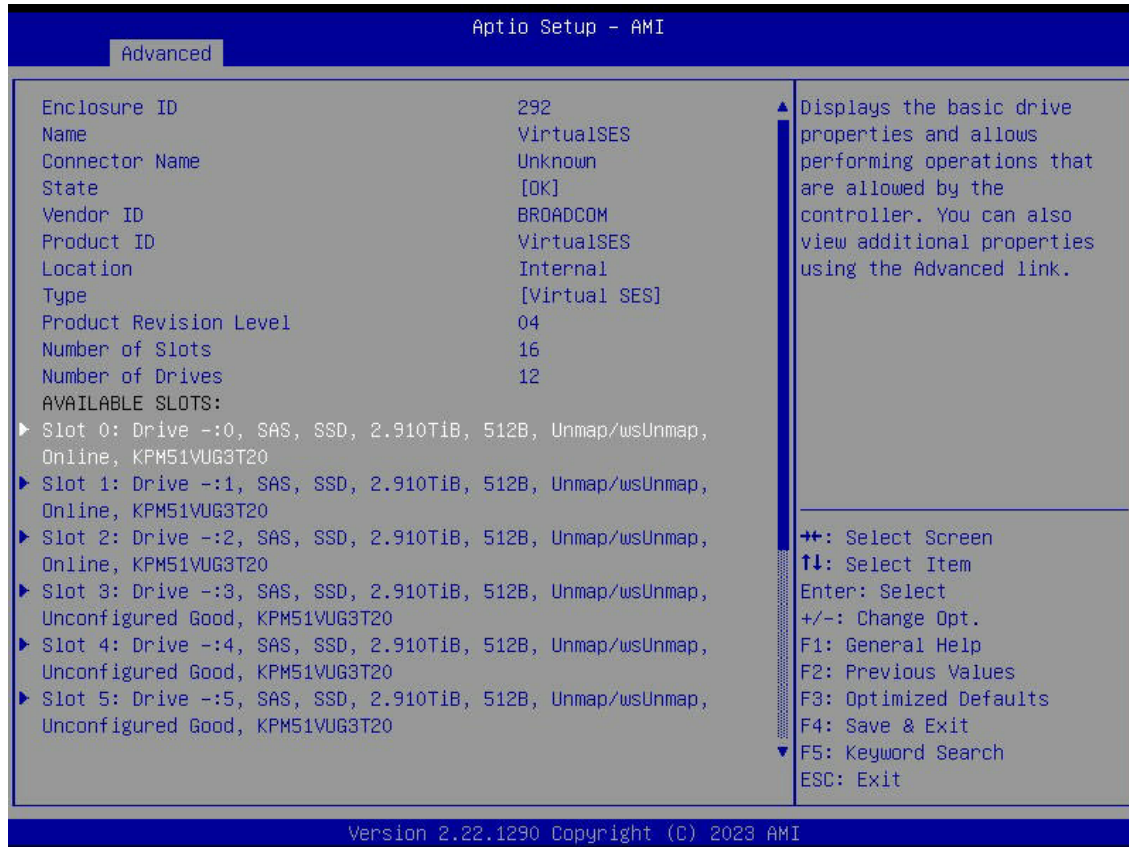
13. To create and view enclosures and the drives attached to them or to perform operations on the drives, navigate to and select "Device Management".



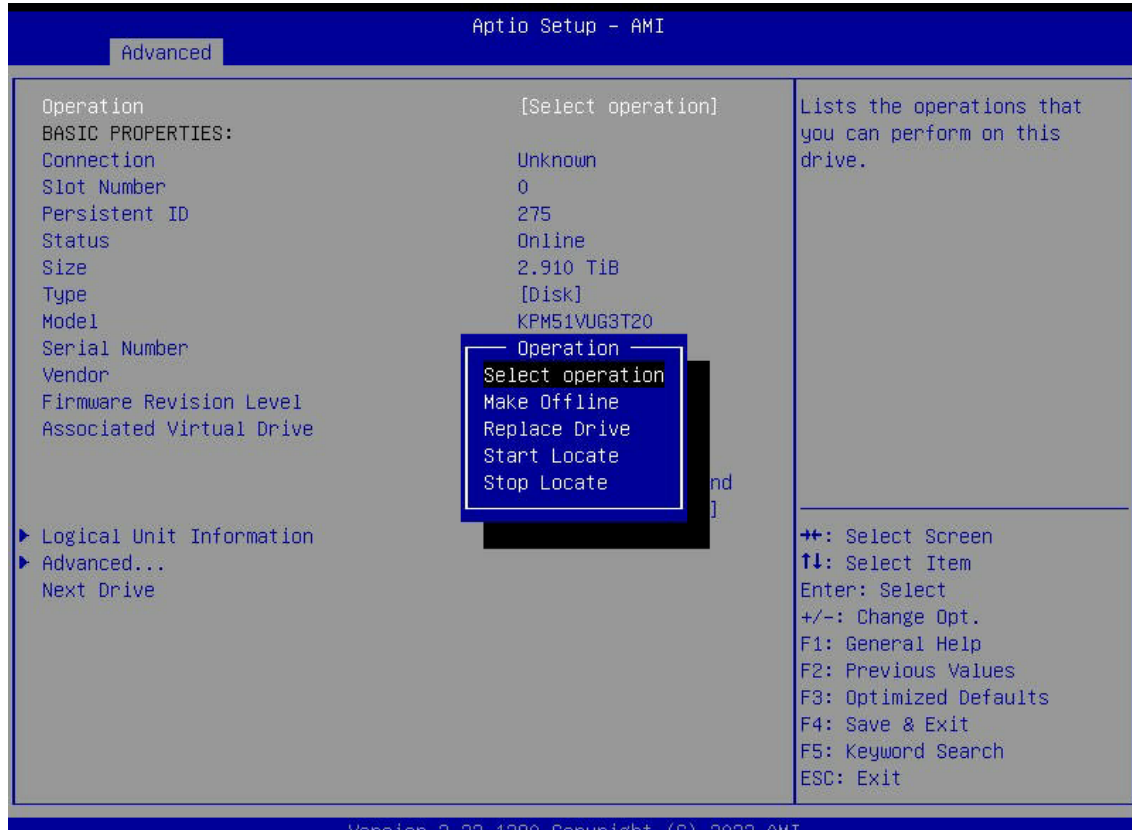
14. To view the details for the logical enclosure and the drives attached to them, proceed by pressing **<Enter>**.



15. The following page will display the hard drive's basic properties as well as options and operations allowed by the controller. You can also use the arrow keys to select available slots to view their additional properties and advanced settings.

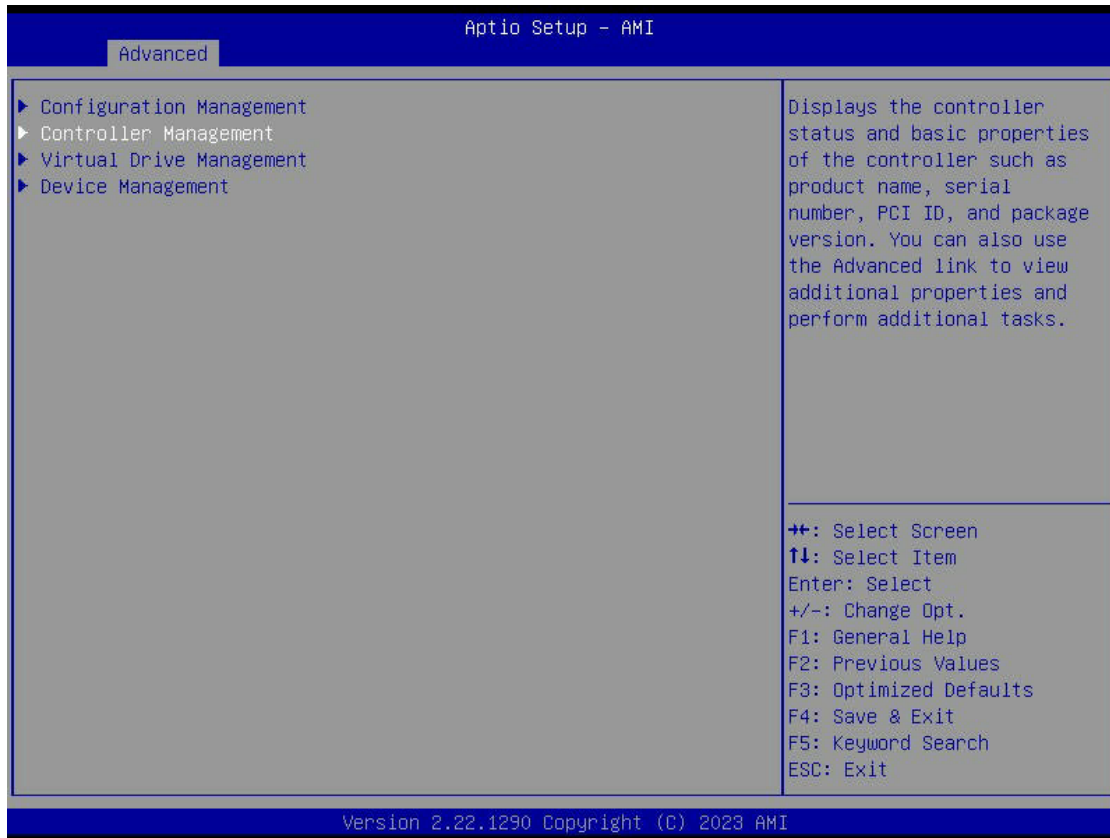


- In the slot Advanced settings, select "Operation" to view the available operation you want to perform on the drive. Options will include Select operation, "Make Offline, Replace Drive, Start Locate, and Stop Locate.



4.5 Controller Management

The Controller Management screen is the second item listed on the main menu. This menu provides information about the settings of the selected controller.



It will display the status and basic properties of the controller, including the product name, serial number, PCI ID, and package version. The menu will also have the links to view additional properties and perform advanced tasks. Use the arrows to select or change settings.

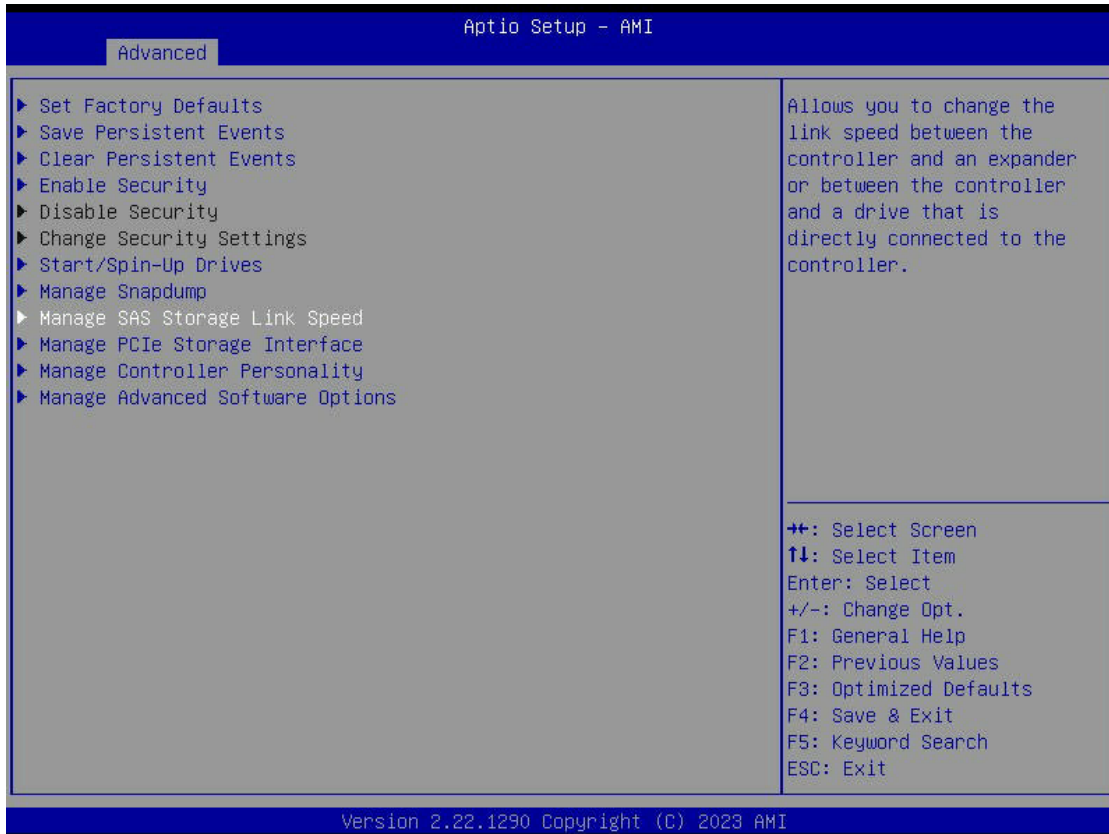


Advanced Controller Management

From the Controller Management menu, use the up arrow or down arrow to select the "Advanced Controller Management" option. This menu provides information about and allows changes to the settings and management of operations for selected controllers.

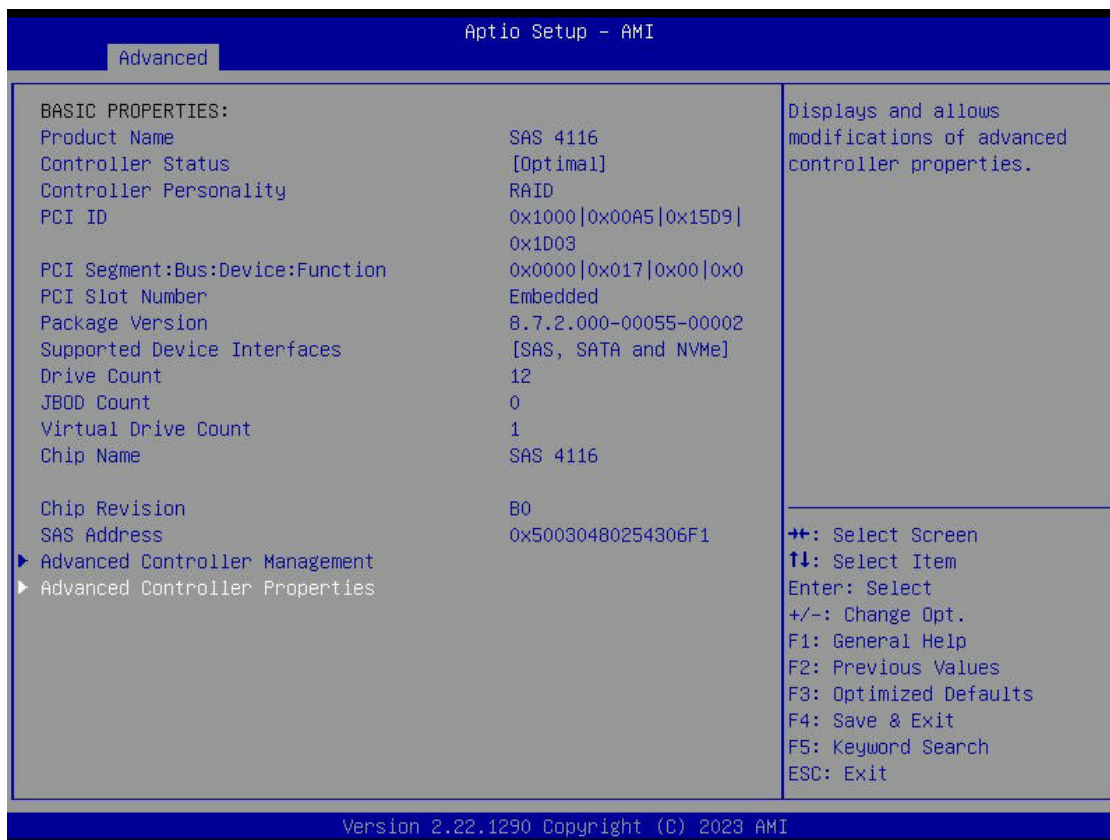


The following screen allows you to view and change settings, such as the drive security and the link speed. Link speed can be adjusted between the controller and an expander, or between the controller and a drive that is directly connected to the controller. Use the up arrow and down arrow to further navigate and access Advanced links.

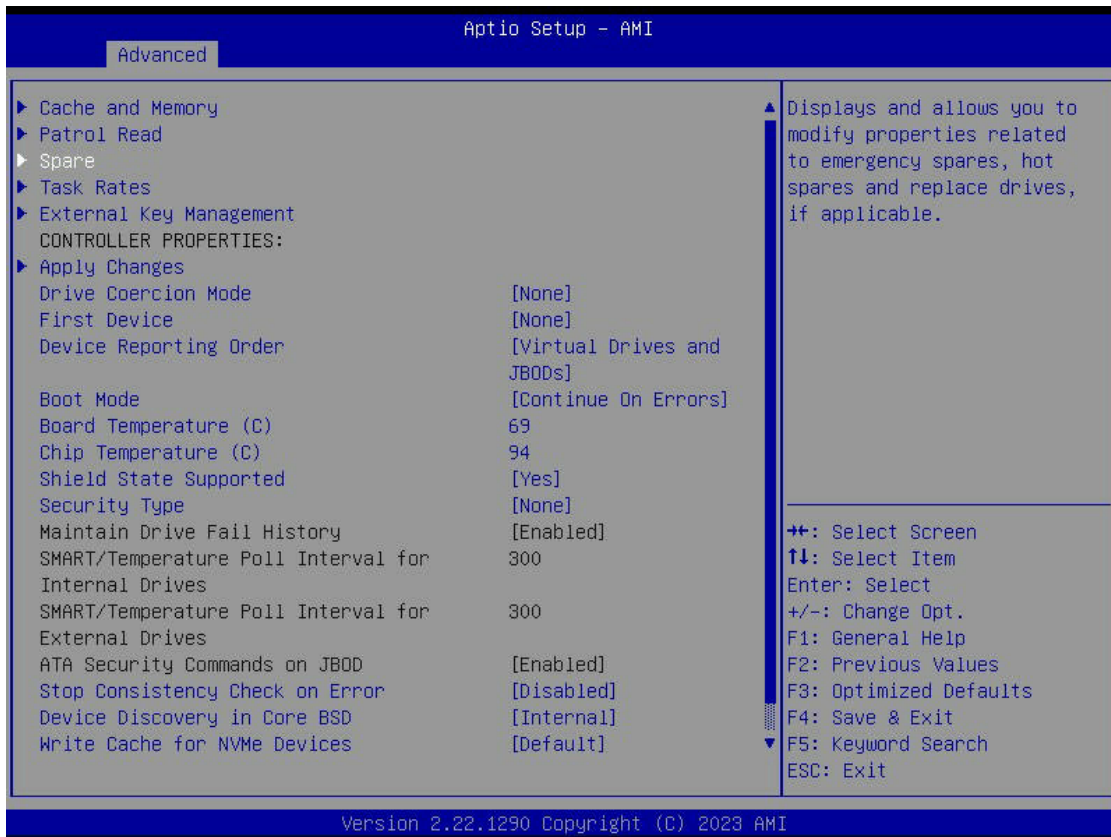


Advanced Controller Properties

From the Controller Management menu, use the up arrow or down arrow to select the "Advanced Controller Properties" menu. This menu provides information about and allows changes to the properties of the selected controller.

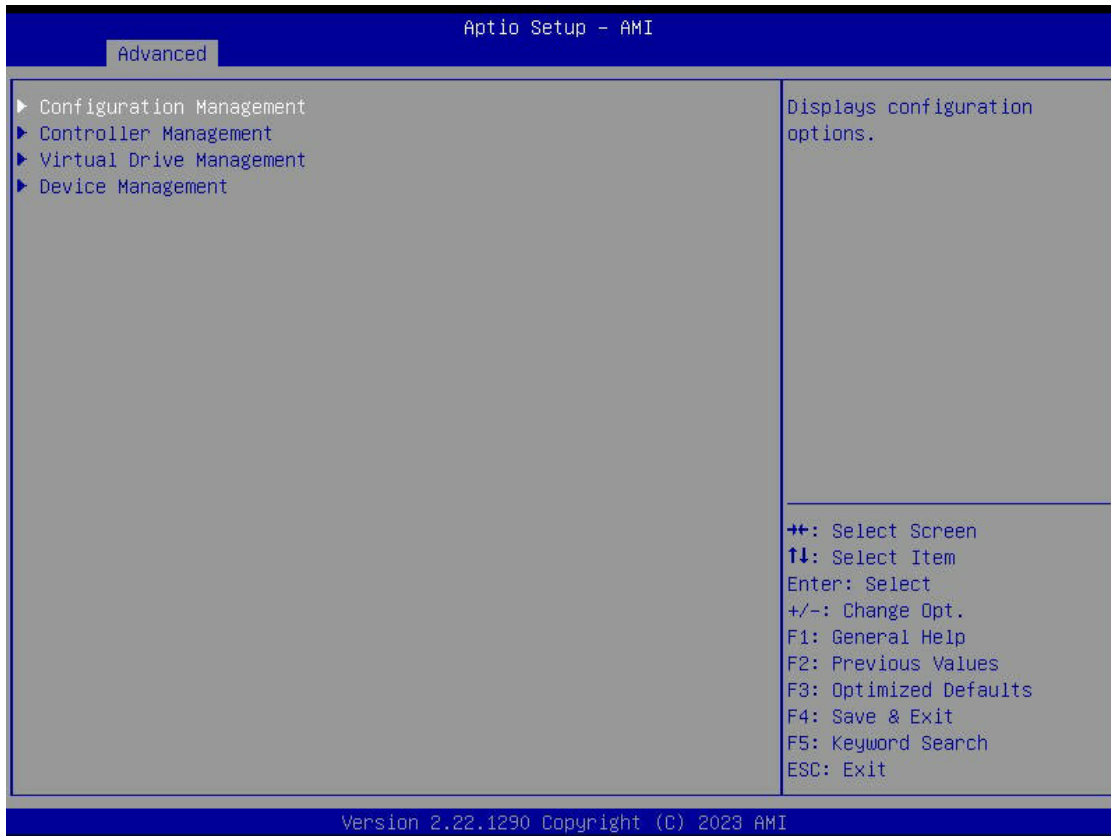


The following screen allows you to view and change properties related to emergency spares, hot spare drives, replacing drives, and other items listed.



Foreign Configuration Management

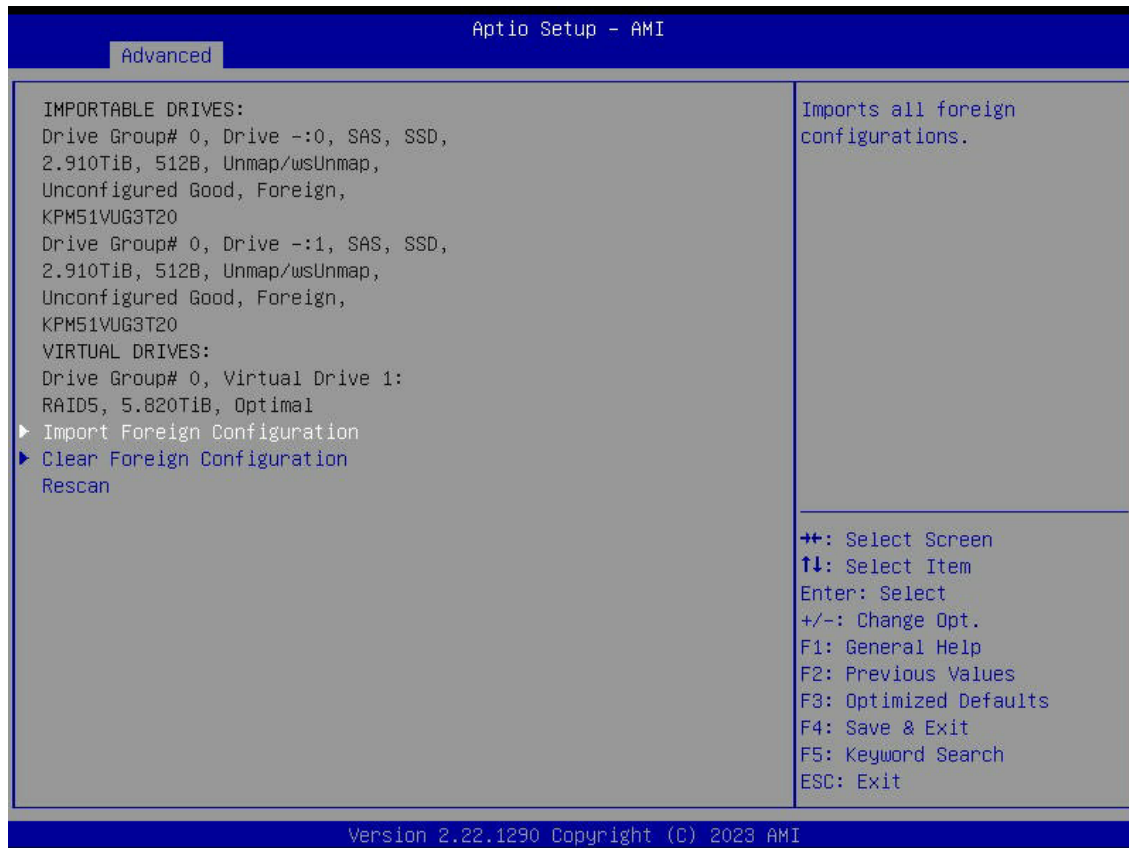
The Foreign Configuration Management menu provides information about the foreign configurations and allows you to import or clear the foreign configurations. To reach it, navigate from the main menu to Configuration Management and press **<Enter>**.



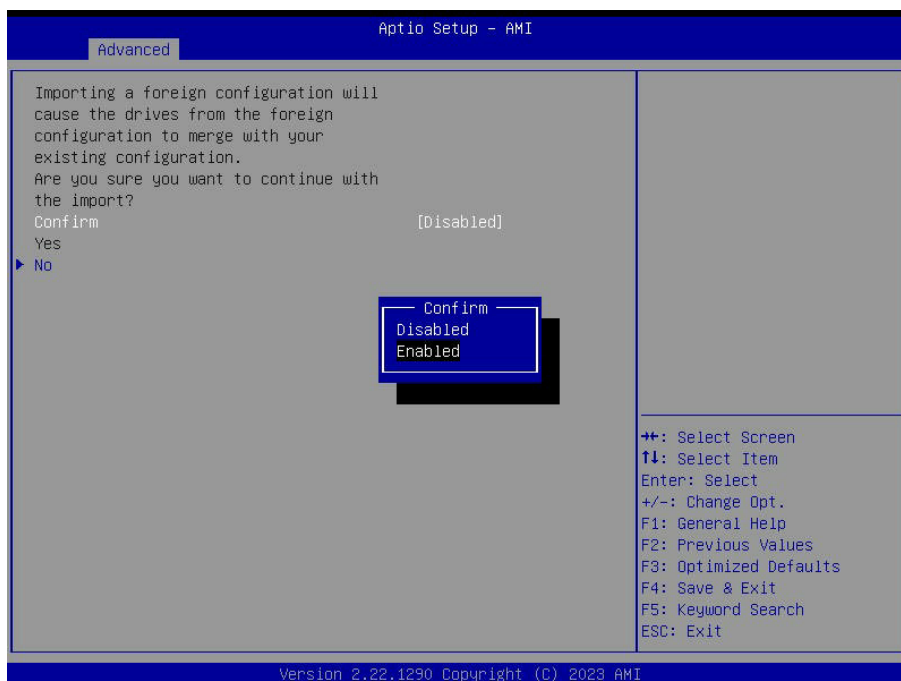
Press the down arrow key to navigate to the Manage Foreign Configuration menu and select it. Note that the Manage Foreign Configuration menu displays only when a foreign configuration has been connected to the controller. If there are any locked foreign configurations, you will need to enter the passphrase and/or security key to unlock the configuration. If applicable, you will also be able to clear the foreign configuration.



Once you are ready to import all foreign configurations, navigate to the Import Foreign Configuration option and select it. It will list importable drives and virtual drives.



A warning will appear stating that importing a foreign configuration will cause the drives from the foreign configuration to merge with the existing one. By default, the "Yes" option will be greyed out and the "Confirm" feature will be set to **Disabled**. To confirm you want to continue with this operation, set "Confirm" to **Enabled** and press <Enter>. Then select **Yes** and press <Enter>.



Package Version

Note that on the Controller Management menu, you can view the version of the controller firmware package under Package Version.

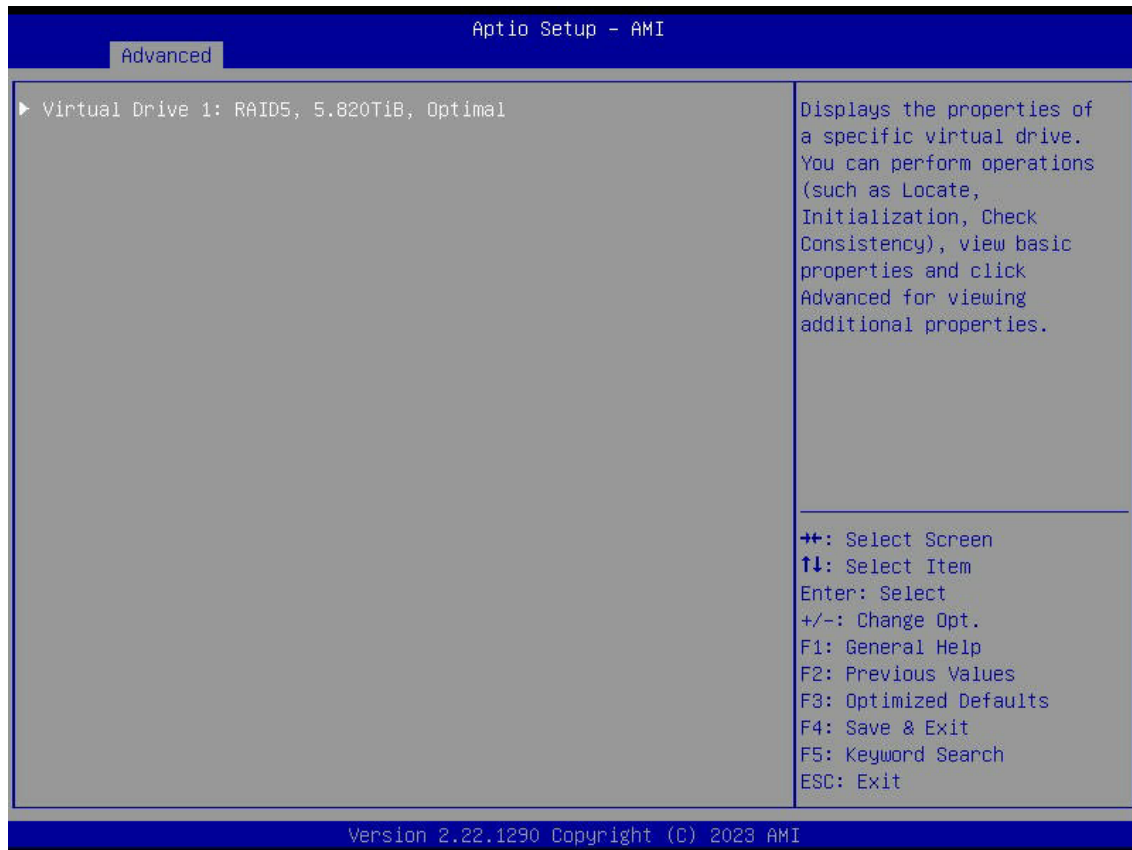


4.6 Virtual Drive Management

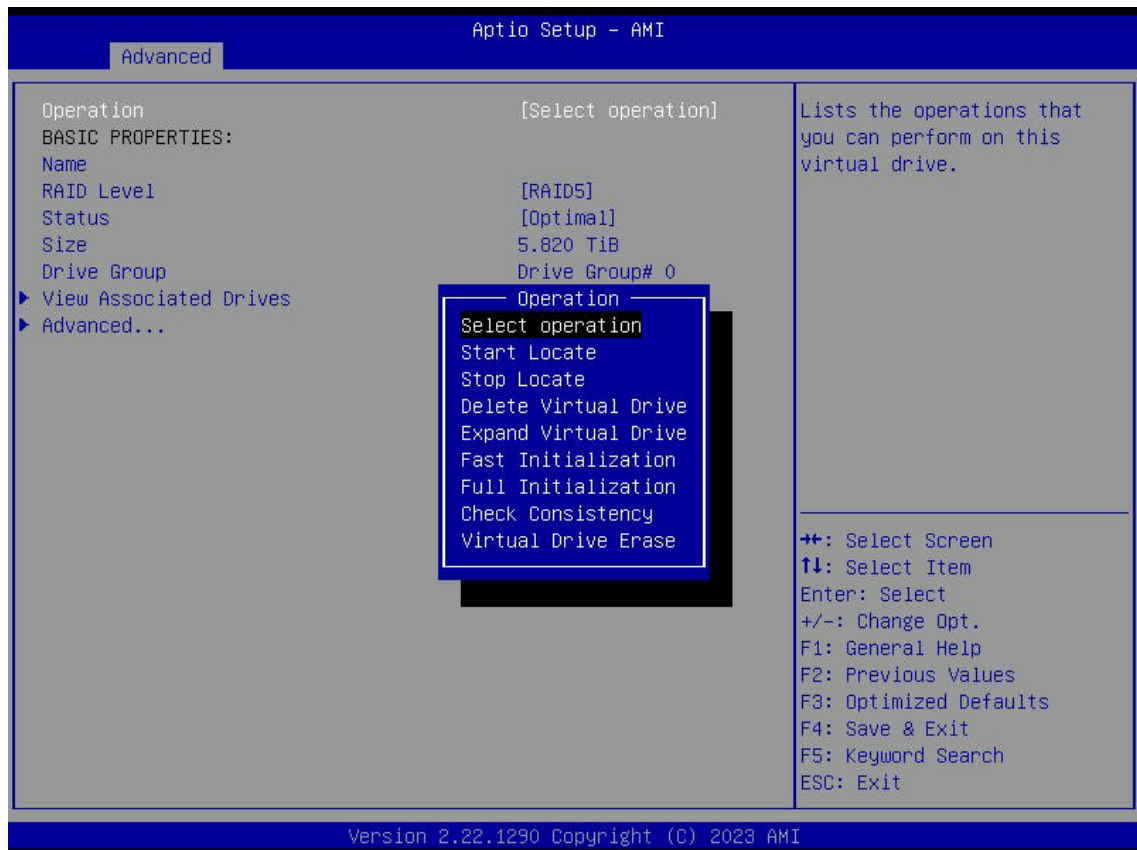
The Virtual Drive Management menu will allow you to manage the virtual drive properties. This includes being able to view the basic virtual drive properties and perform operations such as Locate, Initialization, and Check Consistency. Additional properties and settings can be accessed through the Advanced links.



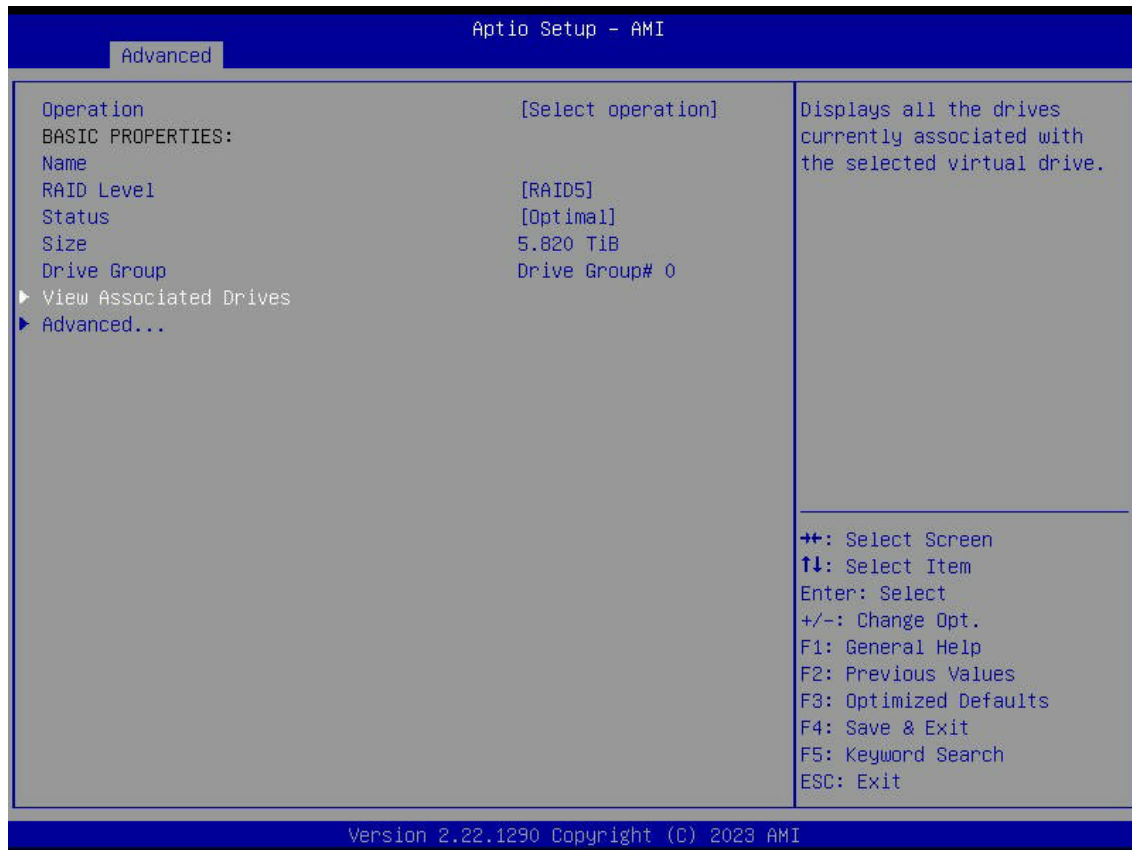
You will then be able to view the available drives. Select and press **<Enter>** to view the properties of the specific virtual drive chosen.



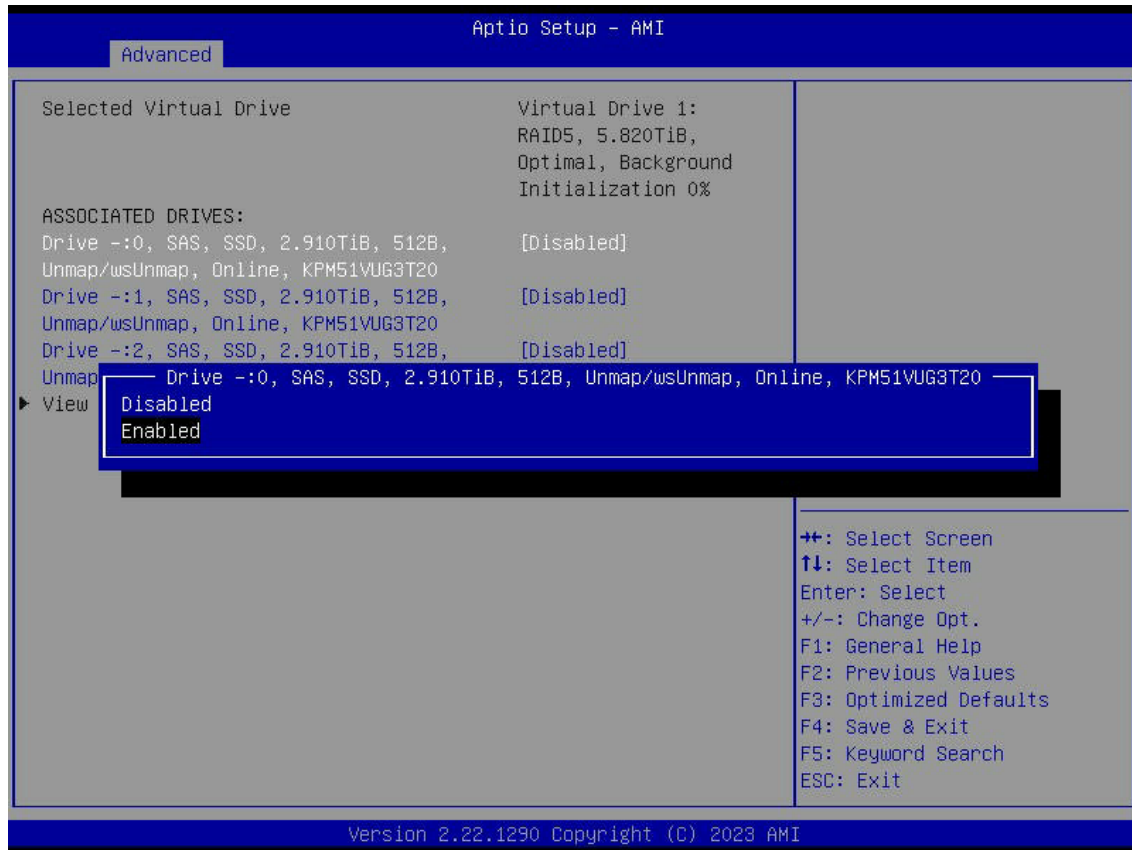
To perform a virtual drive operation, navigate to Operation to select the available operation you want to perform on the drive. Options will include Select Operation, Start Locate, Stop Locate, Delete Virtual Drive, Expand Virtual Drive, Fast Initialization, Full Initialization, Check Consistency, and Virtual Drive Erase.



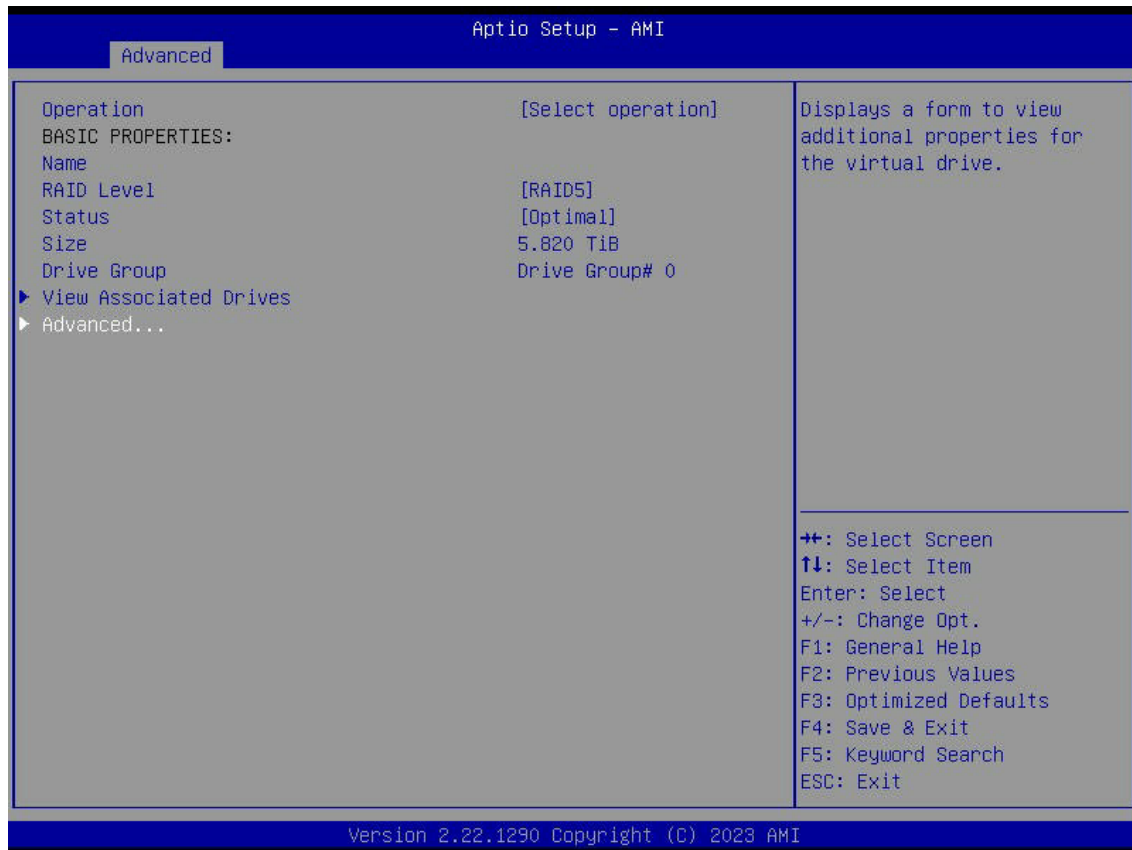
To view all drives currently associated with the selected virtual drive, use the arrow keys to navigate to View Associated Drives and press **<Enter>**.



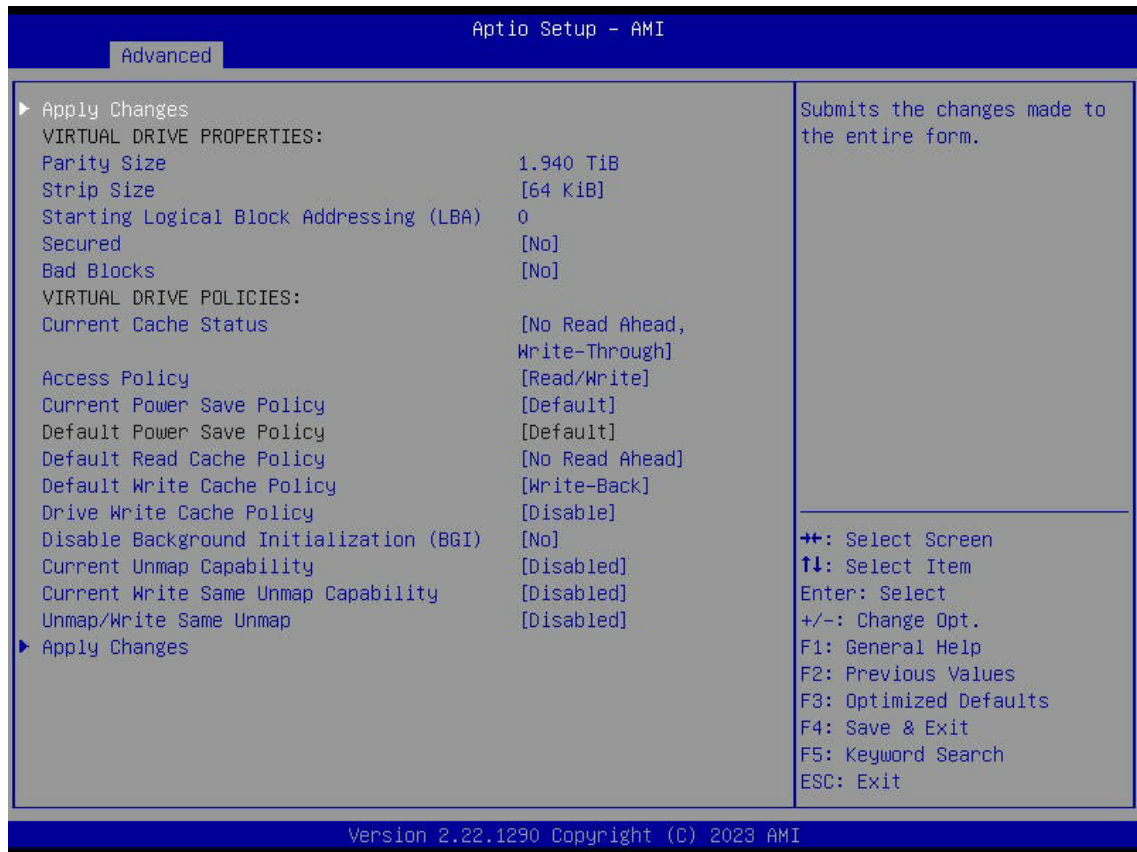
On the Associated Drives menu, you will be able to view, disable, and enable the drives associated with the selected virtual drive. Use the up and down arrow to select a drive and choose **Disabled** or **Enabled** before pressing **<Enter>**.



To make changes to the Advanced settings for the selected virtual drive, return to the Operation page and select the "Advanced..." option.



Use the up arrow and down arrow to change settings. When all changes have been made, navigate to "Ok" and press **<Enter>** to submit the changes made to the entire form.



Chapter 5

MegaRAID Controller Firmware Update Procedures

This chapter provides instructions on how to flash MegaRAID controller firmware. Visit our website at www.supermicro.com for more information about firmware/utilities downloads.

5.1 Flashing Firmware Using StorCLI under DOS

1. You need the Storcli EFI utility and ROM file (smc3908.rom/smc3916.rom) to flash the MegaRAID firmware (all included in the Firmware Upgrade package).
2. Boot to the UEFI shell and enter the USB key to apply the batch file (UPDATE.NSH) and update the firmware.

```

Directory of: F:\STG_AOC-S4116L-H16IR-4116-BRCM-PLDM_20240422_8.7.2.0-55-2_STDsp\
08/30/2024 15:52 <DIR>          4,096  .
08/30/2024 15:52 <DIR>           0  ..
08/30/2024 15:47 <DIR>          4,096  PROD
04/23/2024 16:59                128  readme.txt
08/30/2024 16:08 <DIR>          4,096  UPDATE
      1 File(s)          128 bytes
      4 Dir(s)
F:\STG_AOC-S4116L-H16IR-4116-BRCM-PLDM_20240422_8.7.2.0-55-2_STDsp> cd UPDATE
F:\STG_AOC-S4116L-H16IR-4116-BRCM-PLDM_20240422_8.7.2.0-55-2_STDsp\UPDATE> dir
Directory of: F:\STG_AOC-S4116L-H16IR-4116-BRCM-PLDM_20240422_8.7.2.0-55-2_STDsp\UPDATE\
08/30/2024 15:52 <DIR>          4,096  .
08/30/2024 15:52 <DIR>          4,096  ..
04/23/2024 15:52                561  README.txt
04/22/2024 14:12          10,376,347  STG_AOC-S4116L-H16IR-4116-BRCM-PLDM_20240422_8.7.2.0-55-2_STD
sp.rom
12/29/2023 15:39          4,200,608  storcli2.efi
08/30/2024 16:08           72,835  storcli2.log
02/14/2022 15:24           740  UEFI_howto_example.txt
08/30/2024 16:04           201  UPDATE.NSH
      6 File(s)  14,651,292 bytes
      2 Dir(s)
F:\STG_AOC-S4116L-H16IR-4116-BRCM-PLDM_20240422_8.7.2.0-55-2_STDsp\UPDATE> UPDATE.NSH
F:\STG_AOC-S4116L-H16IR-4116-BRCM-PLDM_20240422_8.7.2.0-55-2_STDsp\UPDATE> echo -off
usage:UPDATE.NSH

F:\STG_AOC-S4116L-H16IR-4116-BRCM-PLDM_20240422_8.7.2.0-55-2_STDsp\UPDATE> storcli2 /c0 download
file=STG_AOC-S4116L-H16IR-4116-BRCM-PLDM_20240422_8.7.2.0-55-2_STDsp.rom activationtype=offline nove
rchk
Downloading image. Please wait...

```

```
FS0:\STG_AOC-S4116L-H16iR-4116-BRCM-PLDM_20240422_8.7.2.0-55-2_STDsp\UPDATE\> storcli2 /c0 download
file=STG_AOC-S4116L-H16iR-4116-BRCM-PLDM_20240422_8.7.2.0-55-2_STDsp.rom activationtype=offline nove
rchk
Downloading image. Please wait...
CLI Version = 008.0007.0000.0012 September 06, 2023
Operating system = EFI Shell
Controller = 0
Status = Success
Description = Component Image download complete. A Complete Reset is required to activate Component
Images.
```

Expected Flash Details Post Activation :

=====

```
-----
ComponentName      ComponentVersion    SecurityVersionNumber Status
-----
Package Manifest  8.7.2.000-00055-00002 N/A                Success
FMC                 8.7.2.0-00000-00001 00.00.00.00        Success
BSP                 8.7.2.0-00000-00001 00.00.00.00        Success
APP                 8.7.2.0-00000-00001 00.00.00.00        Success
HIIM                08.07.09.00         00.00.00.00        Success
HIIA                08.07.09.00         00.00.00.00        Success
BIOS                0x08070600          00.00.00.00        Success
-----
```

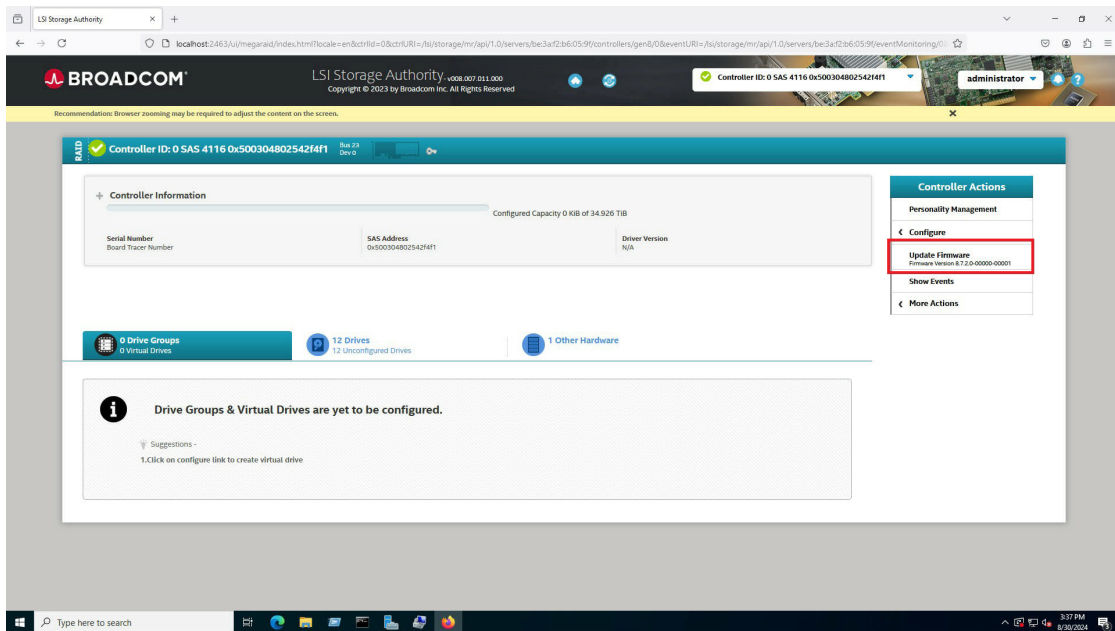
3. Reboot system and check the firmware version under Controller Management Menu/ Package version.



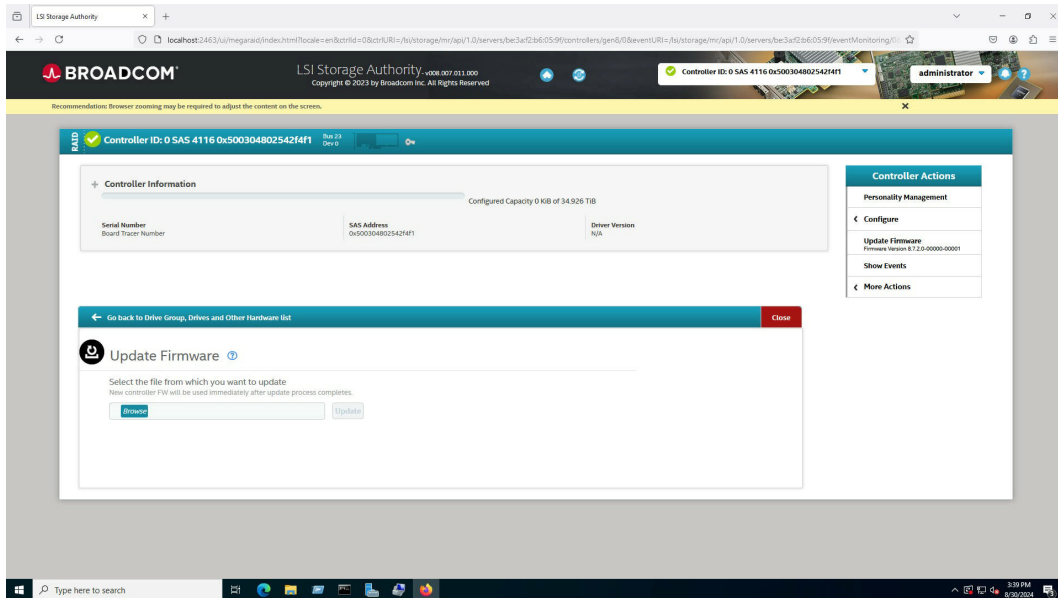
5.2 Flashing Firmware Using LSI Storage Authority

You need the LSI Storage Authority software and ROM file (smc3908.rom/smc3916.rom) to flash the MegaRAID firmware. Follow the steps below to use the LSI Storage Authority software on the following platforms: Microsoft Windows operating system and Linux operating system.

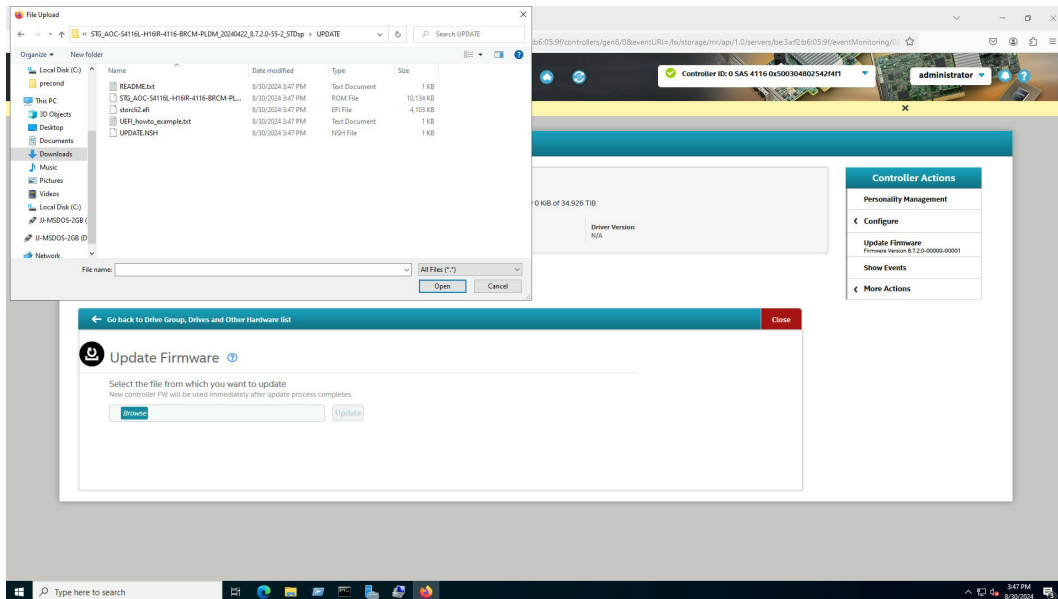
1. Open the LSI Storage Authority application.
2. After selecting the Broadcom SAS 4116 controller to be updated, click the Update Firmware menu option.



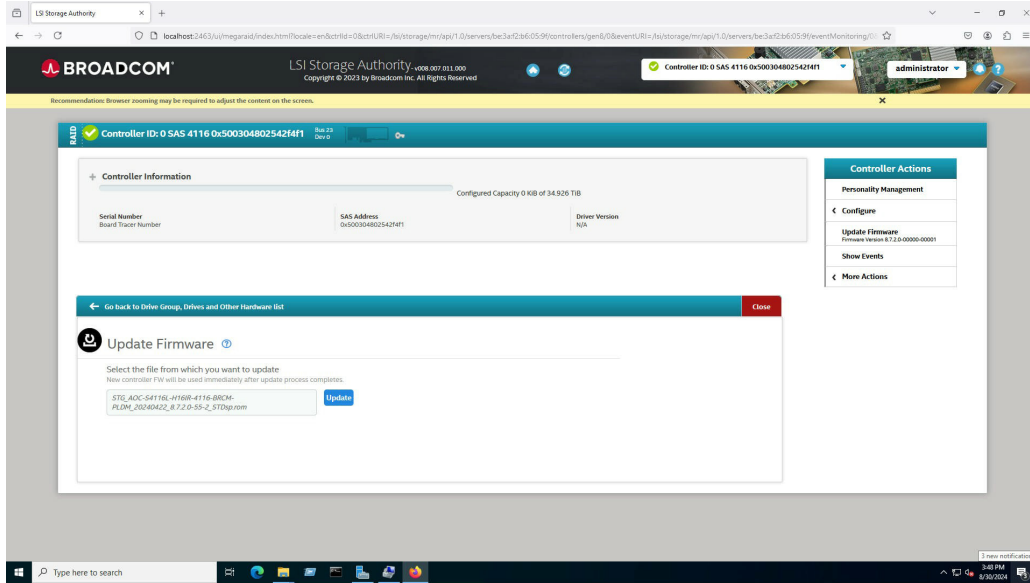
3. Press the Browse button to search for new firmware.



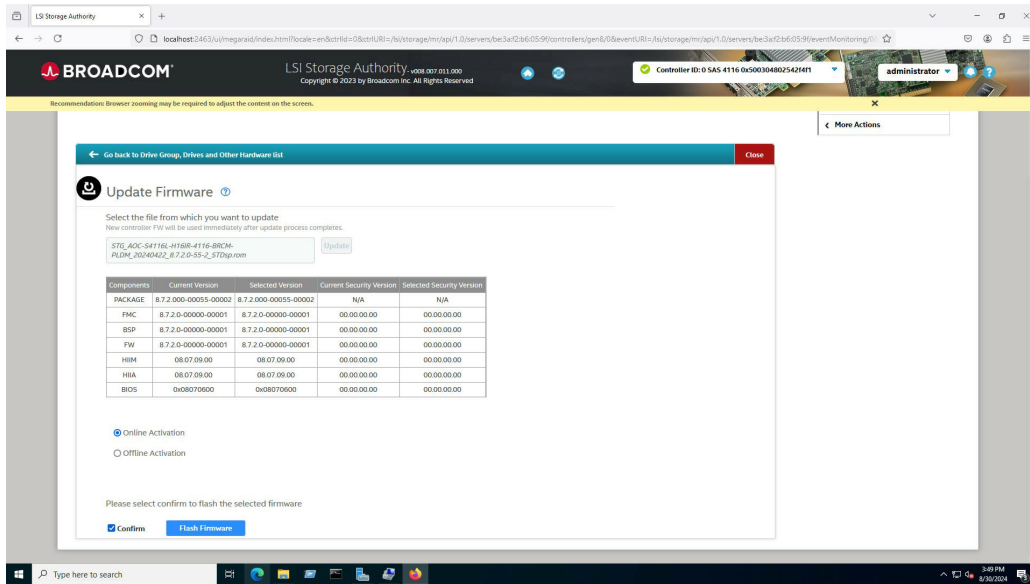
4. Select the new MegaRAID controller firmware.



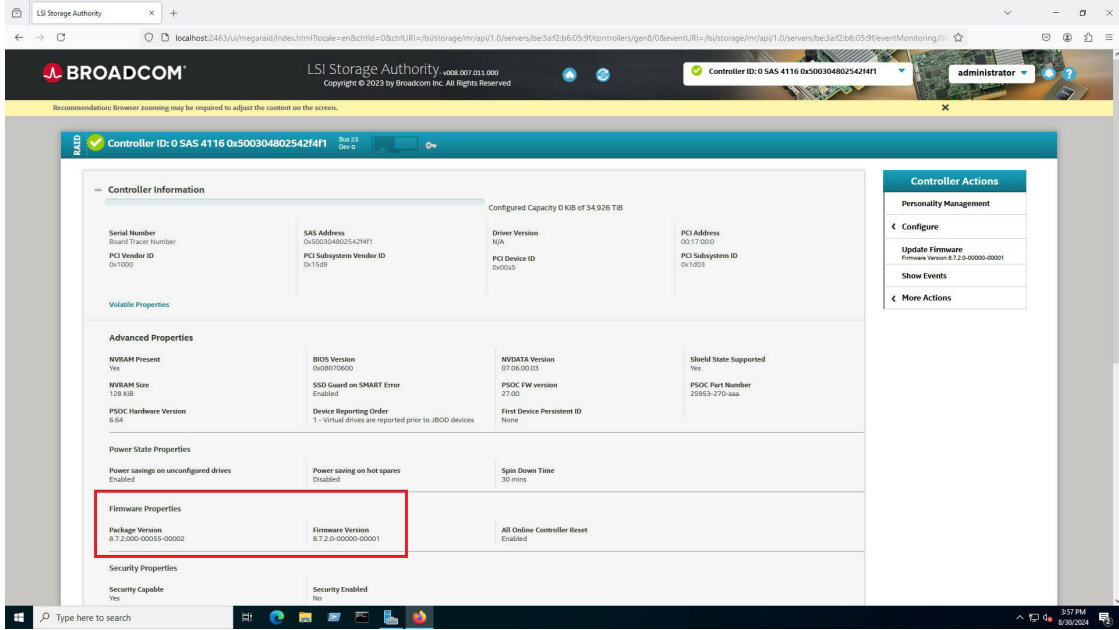
5. Click Update to continue.



6. Check Confirm in the dialog box and click Flash Firmware to continue.



8. Reboot the system and check the firmware version using the LSI Storage Authority application.



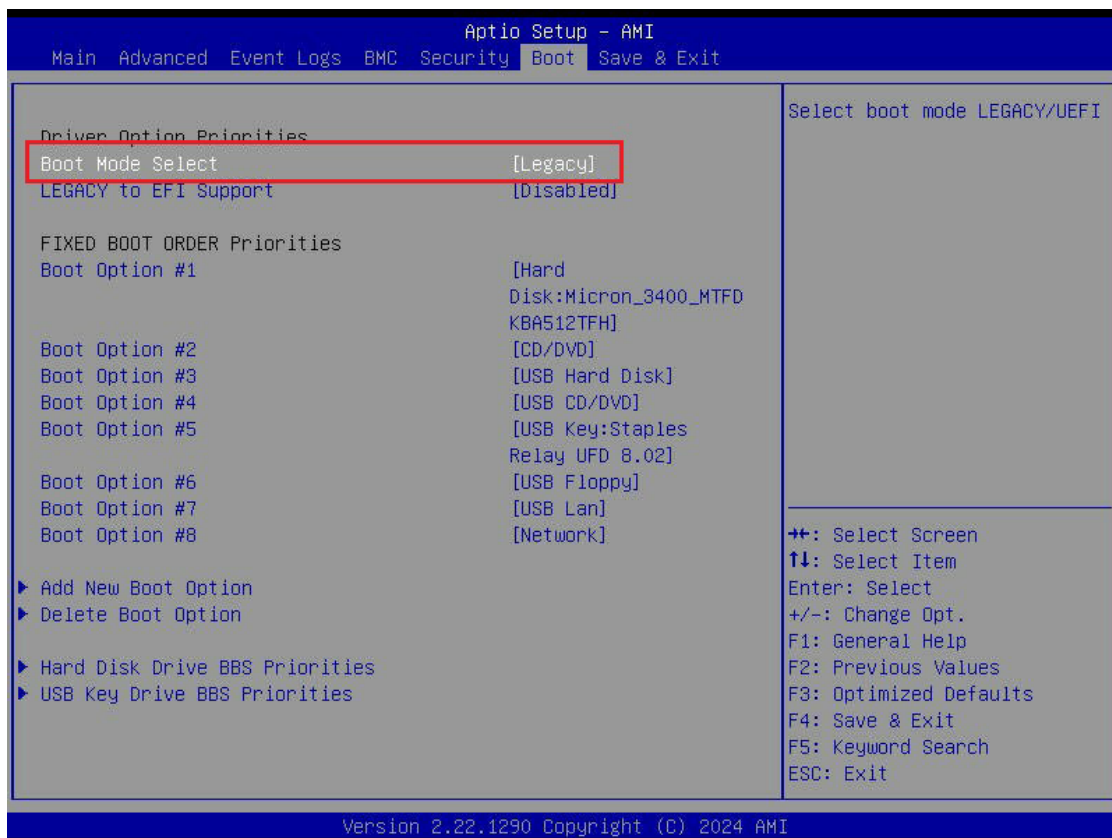
Chapter 6

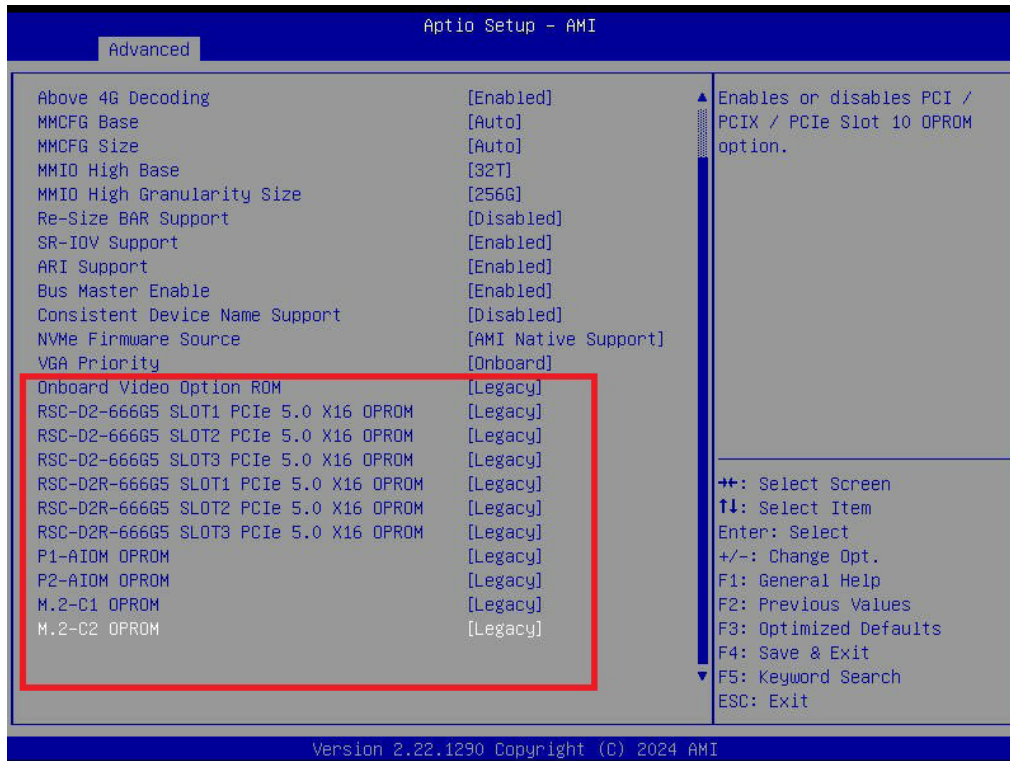
Booting

Depending on the system, motherboard, and BIOS version, use this feature to configure Boot Settings to boot as UEFI or Legacy mode.

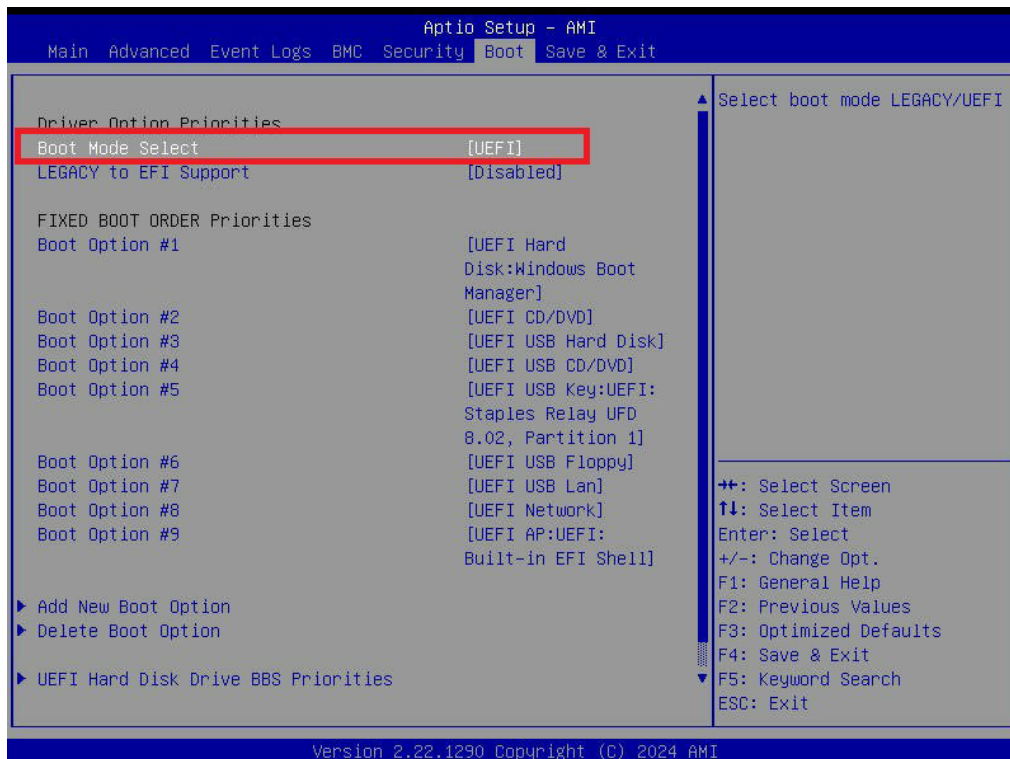
6.1 Configuring Boot Settings

1. If the boot mode changes to "Legacy," the PCIe Option ROM settings change to "Legacy."

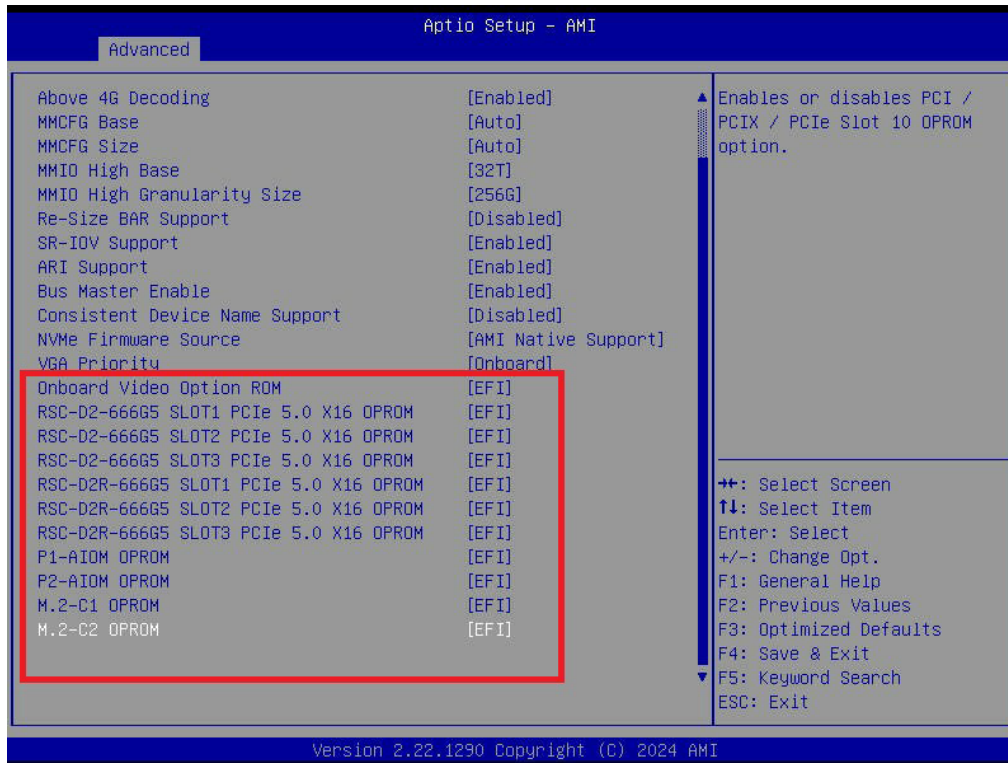




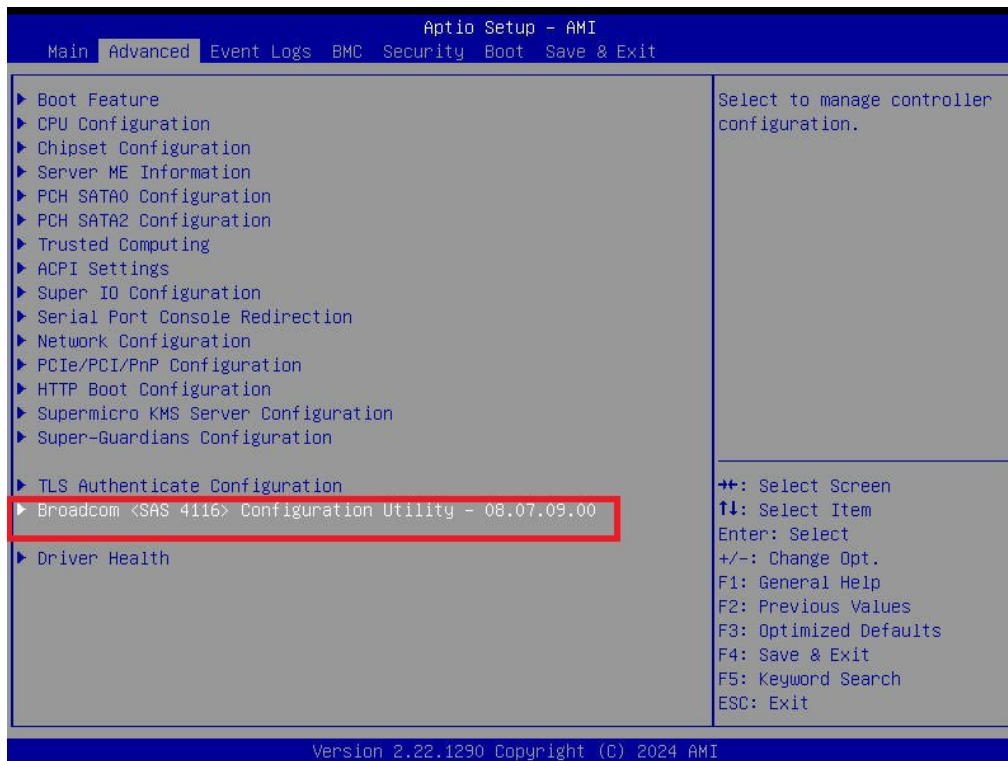
2. If the boot mode changes to "UEFI," the PCIe Option ROM change to "EFI."



3. The add-on card installed in the riser slot changes to **EFI mode**.



4. The controller configuration utility can only be supported under UEFI mode.



(Disclaimer Continued)

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