AOC-S3816L-L16iT
AOC-S3808L-L8iT

User's Guide

Revision 1.0a

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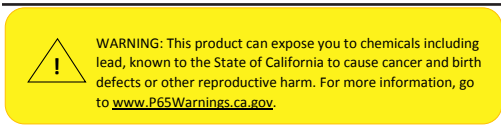

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Preface

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-S3816L-L16iT/AOC-S3808L-L8iT expansion card.

About this Expansion Card

The Supermicro SAS AOC-S3816L-L16iT internal controller card features 16 internal SAS3 ports with two internal SlimSAS connectors. The Supermicro SAS AOC-S3808L-L8iT internal controller card features eight internal SAS3 ports with one internal SlimSAS connector. They utilize an LSIAS 3816 (AOC-S3816L-L16iT) or LSIAS 3808 (AOC-S3808L-L8iT) SAS3 controller chip and feature a 1.2GHz processor. The AOC-S3816L-L16iT/AOC-S3808L-L8iT can provide support for server systems of up to 122 devices. The AOC-S3816L-L16iT/AOC-S3808L-L8iT is streamlined to meet the growing demand for increased data throughput and scalability requirements across the 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-S3816L-L16iT/AOC-S3808L-L8iT 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 a 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.

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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 in quality and performance. For product support and updates, please visit our website at http://www.supermicro.com/

1-2 Technical Specifications

General

Host PCIe Gen4 low-profile card

Sixteen internal SAS3 ports for AOC-S3816L-L16iT, eight internal SAS3 ports for AOC-S3808L-L8iT

1.2GHz processor

HBA supports up to 122 devices with expander

Supports 12GB/s, 6GB/s, and 3GB/s SAS data transfer rates
Supports 6GB/s and 3GB/s SATA data transfer rates

Supports MCTP over PCIe

Supports HW Secure Boot

Enlarged venting hole mounting bracket for improved airflow

Ambient operating temperature: 10°C - 55°C

OS Support

Windows, Linux

Power Consumption

11 Watts for AOC-S3808L-L8iT, 14 Watts for AOC-S3816L-L16iT

Physical Dimensions

Card PCB dimensions: 5.4" x 2.71" (L x H)

Notes

Chapter 2

Hardware Components

2-1 Controller Card Layout and Components

Figure 2-1. AOC-S3816L-L16iT/AOC-S3808L-L8iT

The AOC-S3816L-L16iT is a low-profile SAS controller card with 16 internal SAS3 ports and two SlimSAS x8 connectors. The AOC-S3808L-L8iT 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-S3816L-L16iT/AOC-S3808L-L8iT.

2-2 Major Components

The following are the major components that make up the AOC-S3816L-L16iT/ AOC-S3808L-L8iT controller card:

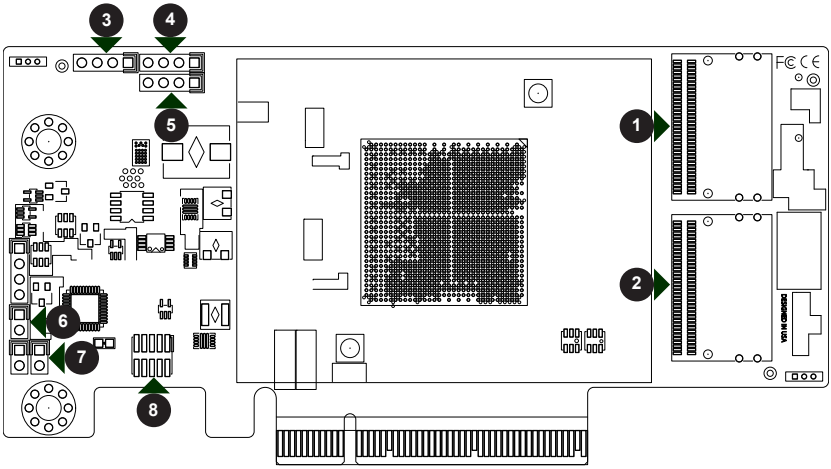


Figure 2-2. AOC-S3816L-L16iT/AOC-S3808L-L8iT Front Layout

AOC-S3816L-L16iT/AOC-S3808L-L8iT Major Components	
Component	**Description**
1	SAS Connectors SAS 0-7
2	SAS Connectors SAS 8-15
3	Debug Header, designated PSOC_UART, J6
4	Debug Header, designated UART0, J3
5	Debug Header, designated SDB_UART, J2
6	Boot Loader Header, designated SBL_DIS, JP2
7	Secure Boot Header, designated SECURE_BOOT, JP3
8	PSoC Program Header, designated PSOC_PROG, J5

2-3 Front Connectors and LED

SAS Connectors

There are two SlimSAS x8 connectors on the AOC-S3816L-L16iT controller card and one SlimSAS x8 connector on the AOC-S3808L-L8iT controller card, providing 16 ports (AOC-S3816L-L16iT) or eight ports (AOC-S3808L-L8iT) that support a transfer rate on each port of up to 12Gb/s with SAS devices and 6Gb/s with SATA devices.

PSoC LED

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

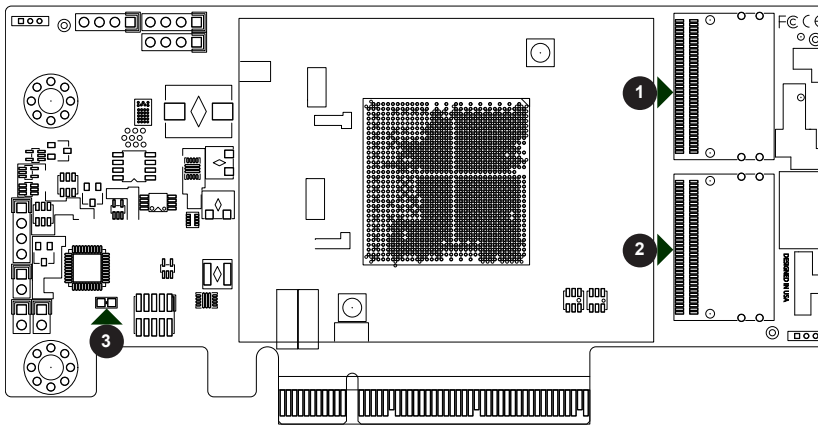


Figure 2-3. Front SAS3 Connectors and LED

AOC-S3816L-L16iT/AOC-S3808L-L8iT Front Connectors and LED	
Component	**Description**
1	SAS Connectors SAS 0-7
2	SAS Connectors SAS 8-15
3	PSoC LED

2-4 Front Header Locations

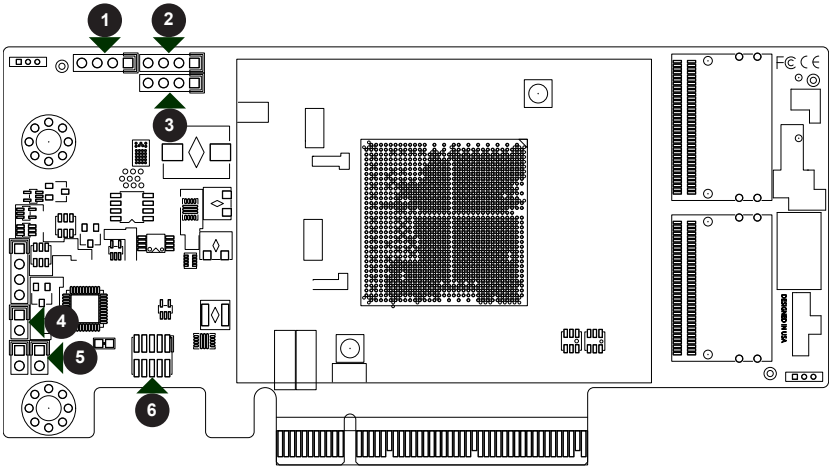


Figure 2-4. Front Headers

AOC-S3816L-L16iT/AOC-S3808L-L8iT Front Headers		
Header	**Description**	**Purpose**
1	Debug Header, designated PSOC_UART, J6	For Engineering Debug
2	Debug Header, designated UART0, J3	For Engineering Debug
3	Debug Header, designated SDB_UART, J2	For Engineering Debug
4	Boot Loader Header, designated SBL_DIS, JP2	For Engineering Test
5	Secure Boot Header, designated SECURE_ BOOT, JP3	For Engineering Test
6	PSoC Program Header, designated PSOC_ PROG, J5	For Engineering Test

2-5 Rear LEDs

Heartbeat LED

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

System Error LED

A solid red LED indicates a system error has occurred.

Overheat LED

A solid red LED indicates the controller card has overheated.

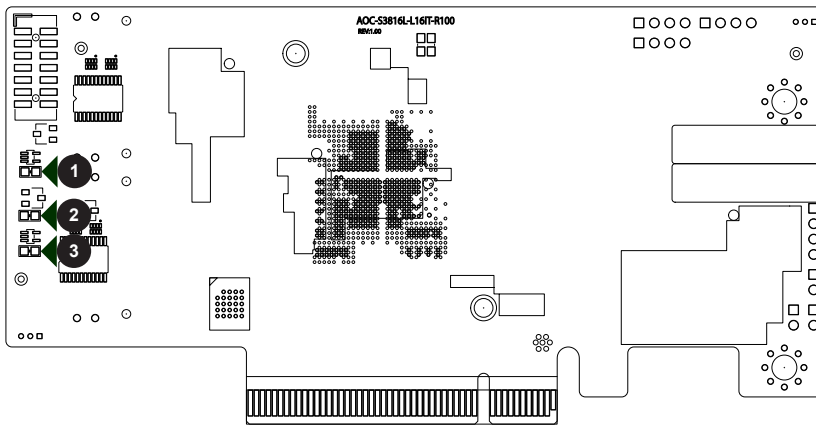


Figure 2-5. Rear LEDs

AOC-S3816L-L16iT/AOC-S3808L-L8iT Rear LEDs	
Component	**Description**
1	Heartbeat LED
2	System Error LED
3	Overheat 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-S3816L-L16iT/AOC-S3808L-L8iT.

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-S3816L-L16iT/AOC-S3808L-L8iT 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 x8 PCIe 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.

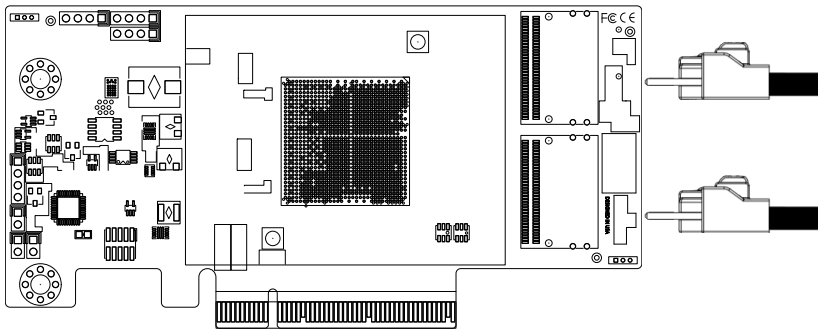


Figure 3-1. Connecting the Cables

3-4 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.

3-5 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/LSI/3808-3816/Driver.

3-6 Uninstalling the Drivers

To Uninstall the Drivers in Windows:

Follow the system driver uninstall procedure in the operating system.

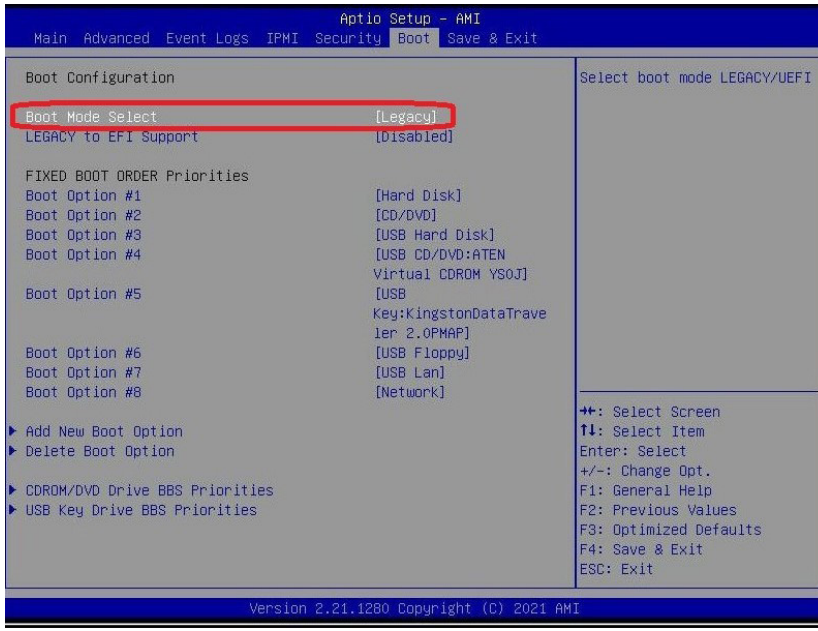
Chapter 4

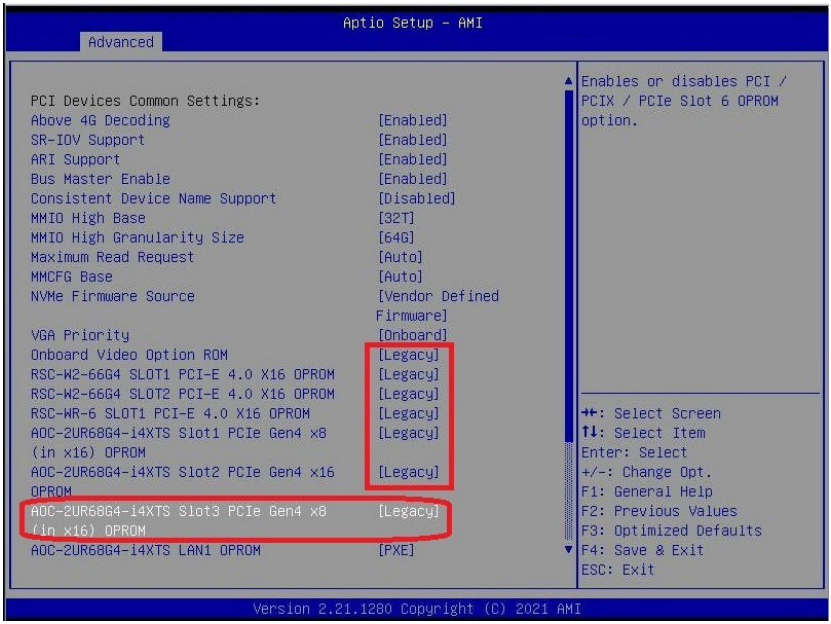
Booting

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

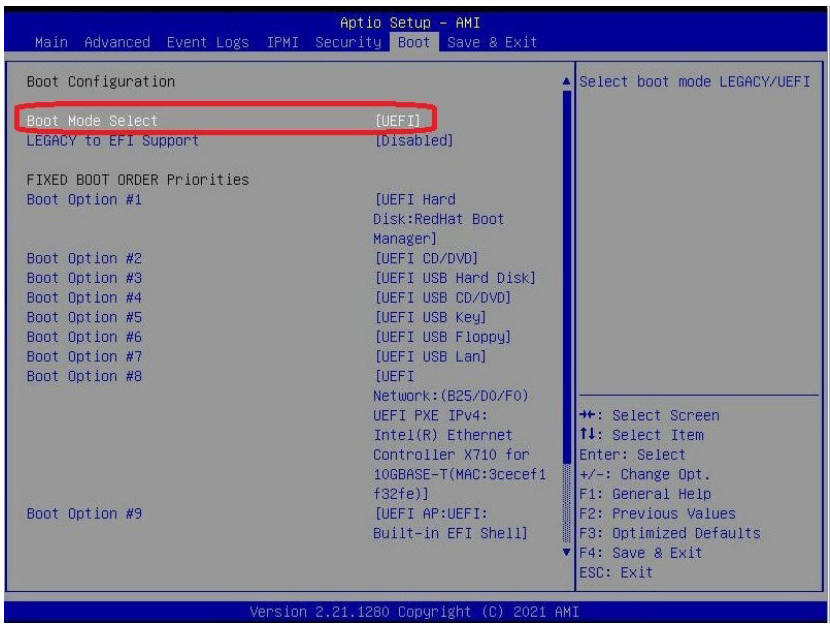
4-1 Configuring Boot Settings

1. If the boot mode changes to “Legacy”, the PCIe settings change to “Legacy”.

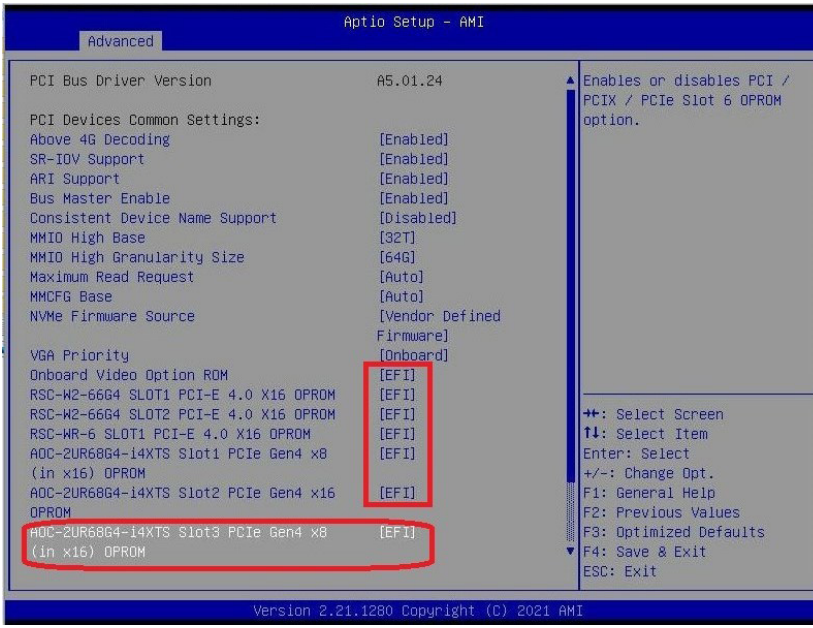




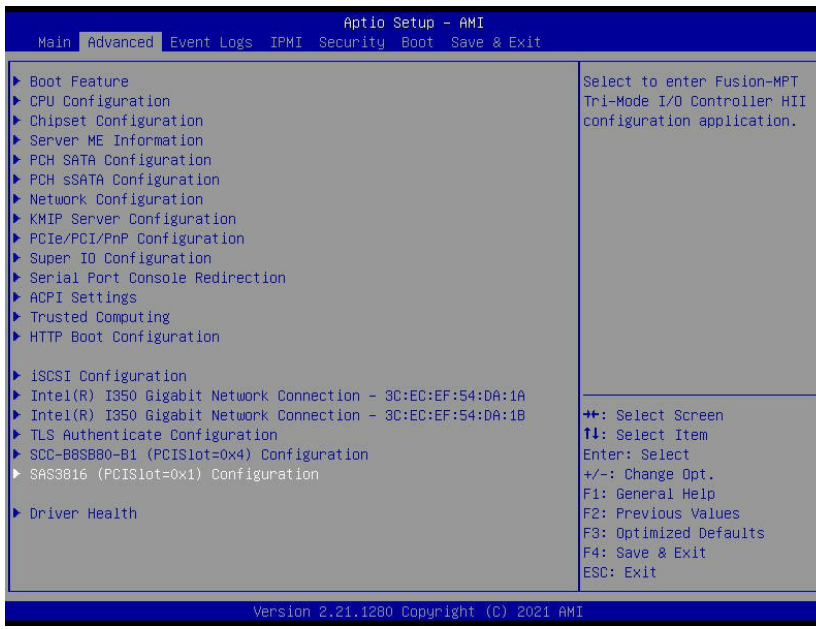
2. If the boot mode changes to “UEFI”, the PCIe settings change to “UEFI”.



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



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



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